

Municipal Journal

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No. 19

CITY PURCHASING IN CINCINNATI

Methods Adopted by City Purchasing Agent's Office.—Forms Used for Authorizing, Making and Recording Purchases.—Standardization Clerk Passes on Requisition.—Auditor Guarantees Payment.

By WILLIAM G. STIEGLER

One of the first accomplishments of Mayor Hunt's administration in Cincinnati was the complete reorganization of the city purchasing agent's office, under the supervision of Stephen W. McGrath. The report of the first year's work, which has just been submitted, reflects the more modern phases of business as applied to municipal purchasing, and a study of the methods evolved and the scientific system established will no doubt prove valuable.

The first step in municipal purchasing is authorization—the need must be manifest, it must be agreed on, it must have proper authority. This, as well as every subsequent step, is only guaranteed by the adoption of standard printed forms, carrying the authorization by signature of all concerned. Thus every requisition must be upon a regular form bearing a serial number, and is signed by the store-keeper who declared the article necessary, by his superintendent who approves the purchase, and by the mayor or director who authorizes its consummation. This is then sent to the purchasing agent and becomes his authority to purchase.

The requisition is first placed in the hands of the standardization clerk, who checks the correctness of the order, if it is properly described, of the most suitable quality, in the proper units, and suggests the best manner of purchase, the best market, etc.

It is then turned over to the order clerk, who places it upon the public bulletin board asking for bids. This in important or unusual purchases is supplemented by postal cards addressed to the prospective bidders. The bids being received, publicly read and carefully computed, the award is made and the order made out in quintuplicate copies by means of typewriter carbons on tinted sheets, each of a different color, but necessarily duplicates in everything else. These are all signed by the purchasing agent, certifying that the order has come to him properly endorsed, and two copies are sent to the auditor. This official examines the fund from which the payment is to be made, and encumbers this fund to the amount of the order. This guarantees the payment of the purchase, and absolutely prevents the payment of the voucher more than once. It also prevents any department from incurring an indebtedness when funds are not available. The auditor releases one copy (retaining the other for his files) and this, bearing his signature, is returned to the purchasing agent. The authorization is now complete and the purchase made.

The other copies of the order are distributed as follows: The original or white sheet is reserved for the inspector's file, who must sign upon inspection and pass it on to the invoice clerk, who will compare the invoice with it, and if correct will send them, together with a

voucher, to the auditor for final approval and payment. The pink sheet is sent back to the requisitioner, who will thus know the vendor, the price, the terms, the time of delivery, etc. The yellow sheet is sent to the vendor and becomes his authority to furnish and invoice. The green copy is placed in the purchasing agent's file.

Thus all concerned are fully cognizant of the whole transaction all of the time. There can be no collusion, no misunderstanding, few errors and these easily seen, and the purchase is scrutinized at every point from its inspection to its receipt and payment.

A digest of this transaction bearing the same serial number is made upon a card and filed in suitable groupings. This consists of the date, requisition and order number, of whom purchased, price, quantity, where delivered, by whom and when inspected. These cards become a record easily available for comparison and information, and are really a priceless asset.

The original requisition, the original order, a copy of the invoice, all the bids, the correspondence concerning the same, all are grouped into an envelope bearing the same serial number and are filed.

In order to facilitate purchases, definite days and hours weekly are assigned to the purchase of each commodity. This enables interest to be concentrated on the subject in hand and is also a great convenience to bidders, as it makes their presence necessary only once a week.

Bids are received in writing only, and upon the Department's forms. They must be sealed and dropped into a locked receptacle prior to the hour designated for opening them.

All bids are first opened in the presence of the bidders, and are publicly read. Whenever possible the award is made directly and to the lowest bidder.

This publicity means a square deal and is reciprocal. It both gives it and demands it. The other bidders see to its genuineness, and woe betide the fellow on either side of the railing who blunders.

In order to accept the low bid, the quality asked for and demanded must be known and correctly stated. To do this intelligently is one of the most important points in the whole system. This work is done by the standardizer, an employe of experience and judgment, who devotes all of his time to this work. He determines the proper quality for the particular purpose, the proper unit, the proper mode of purchase, the real constituents rather than a trade-marked standard. This last eliminates a host of useless duplicates and puts all reputable makes on a basis of equality. Quite as important is the opportunity it gives for larger purchases and continuing agreements, for it is easier and much more advantageous to buy for all the departments and institutions twice a

Form 1 30-443

PURCHASING DEPARTMENT
City of Cincinnati

Requisition on Purchasing Agent

Please purchase the following for _____ to be delivered _____ on or before _____ 191__

QUANTITY	UNIT	ORIGINAL DESCRIPTION	Your No.	QUANTITY OF HAND

I hereby certify that the work or supplies above specified are necessary for _____ use _____ in this division.

Approved: _____

Storekeeper _____

Superintendent _____

Director _____

Date _____

(For Purchasing Department use only)

Date Received _____

Req. No. _____

Request for prices mailed _____

Prices wanted _____

REQUISITION, WHITE FORM.

Duplicate and triplicate are yellow, and do not contain part below the break in the above.

Form 1 30-443

PURCHASING DEPARTMENT
CITY OF CINCINNATI

STEPHEN W. MOGRATH
PURCHASING AGENT

Requisition No. _____

Cincinnati, O., _____

Requisition for following list of material has been made on this department for department as mentioned below and for delivery to destination as mentioned.

Prices to be submitted on or before _____

QUANTITY	MATERIAL, SUPPLIES, ETC.	DEPARTMENT	DESTINATION

Request for price sent _____ to _____

Order Mailed _____

No. _____

No. _____

MATERIAL

DATE	ORDER NO.	REQ. NO.	FROM WHOM PURCHASED	QUANTITY PURCHASED	QUANTITY DELIVERED	PRICE	AMOUNT OF INVOICE	DATE OF INV.

CARD SHOWING DIGEST OF TRANSACTION.

PURCHASING DEPARTMENT
CITY OF CINCINNATI

REQUISITION NO. _____

CINCINNATI, O. _____

We propose to furnish the following supplies for delivery to _____ days from date of invoice, and will allow _____ % discount for cash to _____ days from date of invoice.

Right is reserved to reject any and all bids.

When samples are submitted, material quoted on must be strictly in accordance with same.

2 % Discount will be deducted unless other terms are stated.

QUANTITY	MATERIAL, SUPPLIES, ETC.	PRICE

Sign here _____

FORM FOR SUBMITTING BIDS.

PURCHASING DEPARTMENT, CITY OF CINCINNATI

ORDER TO BE RETAINED BY VENDOR OR MERCHANT.

Messrs. _____

Will furnish and deliver the following directly to _____

No. _____

Date _____

Req. No. _____

Dept. No. _____

Fund. _____

For account of _____

All goods are to be billed at the prices agreed which include packing and delivery charges to place designated below. Invoices in triplicate in case of goods to be delivered on date of shipment to office of Purchasing Agent. One copy to be retained by Purchasing Agent on invoice, shipping tag and delivery memo. The Department will not be responsible for goods furnished without this official order.

All goods ordered must be delivered to department designated. Discount will be deducted as noted and memorandum covering all material must be sent with each delivery and proper receipt obtained, or goods will not be accepted.

QUANTITY	UNIT	DESCRIPTION	PRICE PER UNIT	EXTENDED AMOUNT	EXCEPTIONS

THIS FORM IS PRINTED ON YELLOW PAPER.

A white form, for Auditor's record, contains instead of above note, instructions to Inspector for checking order; and at the foot are certifications to be signed by Inspector, Auditor and Purchasing Agent. The pink, for Requisitioner's office, contains no note at the top, and at the foot are instructions for receiving for goods and securing inspection, and certificate of delivery of goods. The blue form, for the Auditor's office record, contains no notes or instructions. The green, for Purchasing Agent's record, contains at the bottom spaces for recording times invoice and voucher are received and are sent to departments and auditor.

Form 15

INSPECTORS DAILY REPORT

CITY OF CINCINNATI

DATE _____ 191__

The following material on orders mentioned below, has this day been inspected by me, and my report on same is given below in detail.

Orders on which inspection is complete, also orders for final disposition by inspector in chief are hereto attached.

(Signed)

Inspector.

Date of Order	Order No.	Regulation No.	Department	Supplies or Material Inspected	Vendor	Transportation		REMARKS
						Tickets	Cash	

FORM FOR INSPECTOR'S REPORT.

year than for each one once a week. This is also much more attractive to the merchant, because he knows that all are bidding on the same plan, and that no other qualification obtains save the goods and the price.

A continuing agreement running for periods not exceeding a year is a form of purchase desirable in many ways, and a large number of such agreements are in force. These purchases, because of their infrequent recurrence, can be made very carefully, and ample time devoted to them. Samples can be carefully analyzed, and future checks and analyses determined. On the vendors' side they are attractive because they mean a large order with little selling expense and permit of anticipation so that stocks may be safely secured.

The standardizer also keeps in close touch with the markets and is therefore able to suggest the proper time at which to make both contracts and agreements.

This work makes apparent many startling absurdities. In our own case thirty styles of pens were reduced to three styles, one standard letterhead took the place of thirty different ones, the oil that lubricates the pumping engines at the water works serves equally well for the hospital generators, and the same soap cleanses equally well anywhere within the city limits. Coal is bought by the ton but paid for in thermal units, and the department's chemist doesn't know a trade mark from a barn-door.

Cincinnati is fortunate in being able to centralize its Purchasing Department and include therein thirty odd departments of its government. The purchases aggregate a very large amount annually, and such volume demands the utmost of ability and assiduity. The work is intensely interesting, and the esprit de corps and industry displayed in the prosecution of this work by Stephen W. McGrath and his associates is very pleasing indeed to the entire administration.

SIDEWALK IMPROVEMENT IN NEW HAVEN.

In beginning the campaign of 1913 for better sidewalks in New Haven, the city has caused to be sent out 3,100 notices of defective walks which property owners have been requested to replace during the spring with satisfactory cement walks.

Of those on the defective list, 1,178 walks were brick. The others were defective tar walks, flag, and a few cement walks.

An estimate of the work done last year in replacing the defective sidewalks of the city with sound ones shows that 1,710 new pieces of walk were laid. Of this number, 730 replaced brick, and the balance tar and flag.

During three years' campaign of the present administration, more than 8,500 pieces of new walk have been laid, making a total of between 175 and 180 miles, or about 10,000,000 square feet of sound sidewalks.

In the first ward of the original twelve wards only 32

defective walks are left to be relaid. In the remaining eleven of the other twelve wards, the records of the director of public works, W. Scott Eames, show that 1,146 defective walks remain. These are scattered about the city and an aggressive effort is being made to induce the property owners to relay them during the present year.

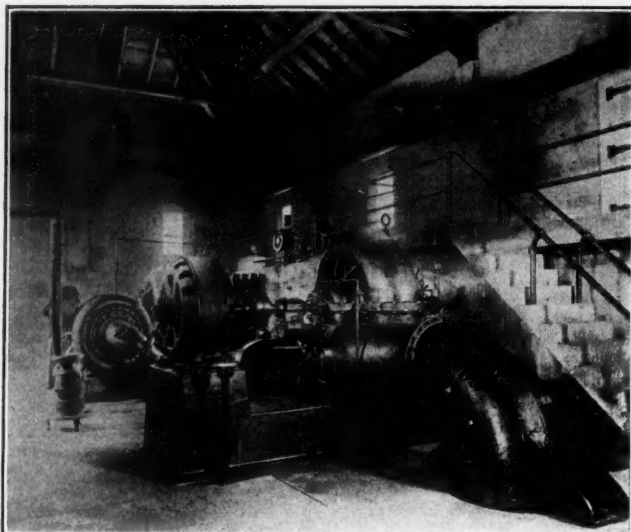
SEWAGE PUMPING AT GRAND RAPIDS.

In our issue of Nov. 15, 1911, we described the intercepting sewer which was at that time being built along one bank of the Grand river, which flows through the city of Grand Rapids; in which description we alluded to the fact that it would be necessary at times of high water to pump the sewage into the river.

Provision for this pumping has been made at four stations, three of which have been built and equipped, the fourth of which has not yet been completed. In one of these stations, two large pumping units have been installed, and three units in each of the other two. The fourth station will, when completed, contain four units.

In the first of these stations there are two 18-inch centrifugal pumps lifting against a normal head of 3.1 feet and having a normal capacity of 13,000 gallons per minute. The pumps are driven by 30 horse-power motors at a speed of 340 r. p. m. There is also a vacuum pump having a normal capacity of 300 cubic feet per minute driven by a 2½ horse-power motor. The large pumps are directly connected to the motors, while the small vacuum pump, which is used as a priming pump, is belted to its motor. In each of the other two stations there are two 34-inch centrifugal pumps and one 12-inch centrifugal pump, the former having a capacity of 17,000 gallons per minute and the latter of 4,300 gallons per minute. In one of the stations the normal head is 6.8 feet, and in the other station 10.2 feet. The speed in each case is 340 revolutions per minute, similar to that of the 18-inch pump, and the same size vacuum pump is used for priming in each station. The 24-inch pumps are driven by 60 horse-power motors, and the 12-inch pumps by 30 horse-power motors. In the fourth station it is intended to place four 48-inch centrifugal pumps, with a capacity of 47,000 gallons per minute against a head of 6.7 feet, driven by 175 horse-power motors having a speed of 575 r. p. m. The pumps were furnished by the Buffalo Pump Company, and the motors and electrical equipment by the Westinghouse Company. The power for these motors is supplied from the circuits of the Grand Rapids & Muskegon Power Company.

When there is danger of flood, an attendant goes to the pumping station, throws in the main line switch and closes the discharge valve. When the sewage level reaches a predetermined point, the attendant starts the pumps and runs them until the river falls so that the sewage will discharge by gravity. He then opens the discharge valves and shuts the motors down entirely,



GRAND RAPIDS SEWAGE PUMPS.

cleans the machinery and leaves it in good condition, and the station is then closed until the next flood renders its operation necessary. One man could readily perform all the work required at a station during pumping, but two are always on duty during the floods to prevent any possible trouble in case of an accident to one of them.

UTAH ROAD LAW CHANGES.

The 1913 Legislature of Utah has made two changes in the state road law: one, that the annual appropriation for state road purposes be increased from \$60,000 to \$97,200; the other, that whenever the State Road Commission shall decide to construct a portion of a state road in any precinct of a county, the county commissioner shall levy a special road tax of five mills, instead of up to five mills as the previous law provided.

COST OF ENGINEERING AND INSPECTION.

The cost of engineering and inspection on sewer construction and street improvement work done by the city of Spokane, Washington, during 1912 has been tabulated by City Engineer Morton Macartney, and curves plotted from these figures. These curves indicate that on sewer construction, engineering costs about 7 per cent of the contract price for the work where this is \$1,000, 6½ per cent where the price is \$2,000, 5.6 per cent where it is \$4,000, 4.9 per cent for a \$6,000 contract, 4.3 for \$8,000, 3.9 for \$10,000, 3.5 for \$12,000, 3.25 for \$14,000, 2.5 for \$20,000, 2.2 for \$25,000 and 1.75 for \$40,000. Sewer inspection costs 6.25 per cent for \$1,000, 5.4 for \$2,000, 4.5 for \$4,000, 4.0 for \$6,000, 3.4 for \$10,000, 2.9 for \$15,000, 2.6 for \$20,000, 2.5 for \$25,000 and 2.25 for \$40,000.

On street work the costs are less, those for engineering being 4.2 per cent for \$1,000, 3.75 for \$2,000, 3.25 for \$4,000, 2.4 for \$10,000, 2.0 for \$15,000, 1.7 for \$25,000 and 1.55 for \$40,000. Inspection on street improvement work is given as costing 3.25 for \$1,000, 2.9 for \$2,000, 2.4 for \$4,000, 1.8 for \$10,000, 1.55 for \$15,000, 1.45 for \$20,000 and the same for \$40,000.

IMPROVING PROVIDENCE MALL.

By WILLIAM M. STRONG.

In following out a plan suggested by Joseph H. Gainer, recently elected mayor of Providence, R. I., the park department has begun extended improvements in the heart of the state's capital—Exchange Place—and is constructing a mall to beautify with trees, flowers and shrubbery a heretofore barren and desolate spot.

Formerly used as a parking place for teams and automobiles and considered as an eyesore by many people who frequented the place as patrons of the Rhode Island Railway Company, the park commissioners have evolved a plan to make it a beauty spot in keeping with the vast lawns and parks of the New Haven railroad nearby.

The shrubbery of the new mall will be its feature. Fred C. Greene, superintendent of the park system, has charge of planning the flower beds and tree plots. Early blooming shrubbery will be planted this year while European lindens will furnish the tree decorations.

The general scheme of the mall will consist of an oval about 300 feet in length. Inside this will be circular and triangular beds in which the shrubbery will be planted.

Inside the oval will be three large circular beds, inclosed in concrete. These will be 60 feet in diameter. Two of them are to be located on the south side and one on the north side of the soldiers' monument. In the event the city council fails to approve of a waiting station for the Rhode Island Company at the north end of the oval, it is likely that a fourth circular bed will be placed there.

In each of these beds will be set two European lindens, grass seed will be sown and King Humbert cannas will be planted. Mr. Green said that in selecting lindens he believed the best and quickest results would be obtained owing to the hardiness of the tree, which makes it possible to trim it to most any shape at any time without killing the tree.

Near the outer edges of the oval will be placed eight triangular shaped beds. In the center of each one of these a linden will be planted. Shrubby and flowering plants to be set in these beds will consist of forsythea, sterea and dentzia. A plant of Malus Park Manni, a beautiful spring flowering shrub, will also be placed in each triangular space.

All the shrubbery beds will be seeded, while outside



DESIGNER'S PLAN OF IMPROVEMENTS TO PROVIDENCE MALL, NOW UNDER WAY.

the beds, at the sidewalk grade, granolithic walks will be built.

The city has already appropriated \$12,000 for this improvement and in the event more is needed another appropriation will likely be made as the idea has met with popular favor in the city.

The plan of the mall was suggested by Edward F. Ely, a member of the Board of Park Commissioners, and the idea is being executed by Mr. Greene, the superintendent, with the assistance of the employees of the park department. The work began March 15 and it is expected will be completed by May 1.

WATER WORKS OF WAVERLY, N. Y.

The history of the water works of Waverly, N. Y., is typical of that of many of the older cities and villages of the eastern part of the United States, and the present city engineer of Waverly, T. P. Yates, sends us this description as a brief historical statement which is the more interesting for having such general application.

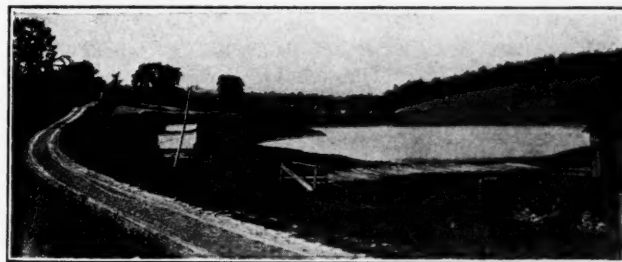
About fifty years ago the public supply consisted of cisterns from which water was obtained by the bucket brigade in the event of the occasional fires which occurred. About that time a hand pump fire engine was obtained and it was found that even this was able to exhaust the water in one of these cisterns in a very few minutes. This experience resulted in the construction of a large cistern in the principal business street which was filled by rain water leaders from the nearby roofs. This served fairly well until, on the occasion of a large fire, even this cistern was emptied long before the fire had been quenched.

This experience led to the next step, a survey by the village surveyor, Arthur Yates, with a view to determining the practicability of using water power from the Chemung river to raise water from this river to a natural reservoir on an adjacent hill. It was realized, however, that in a dry season no water power would be available and this project was abandoned. The present city engineer a little later made a survey and found a reservoir site less than half a mile above the village limits from which water could be obtained by gravity to the village, but no action was taken towards construction. Some years later another civil engineer called the attention of the village to the same site and urged that a municipal water works be constructed, but again no action was taken. Meantime other cisterns were built by the village, but the purchase of a La France steam fire engine demonstrated that even these were insufficient; but in spite of agitation by leading citizens for a municipal plant the proposition was turned down by the voters when submitted to them.

One of these citizens, J. T. Sawyer, formed the Waverly Water Company, obtaining a franchise from the village, and this company constructed a reservoir on the site previously considered, and began furnishing water in November, 1880. This furnished a pressure of 86 pounds in the main street and rendered unnecessary the service not only of the cisterns, but also of the steam fire engine. The following year the service was extended to South Waverly, which adjoins Waverly, but is in the state of Pennsylvania. These works were gradually developed and on May 1, 1912, by the payment of \$210,000, the village of Waverly came into possession of the entire plant, including the extension to South Waverly. While in the ownership of the water company, in 1891, a second reservoir was built just above the original one on the same brook. The lower reservoir is about 210 feet above the main street and holds 90 million gallons. The upper reservoir holds 32 million gallons, which can be in-

creased to 151 million by raising the dam. The double reservoir, besides greater storage, practically insures clear water in the lower reservoir, the upper one acting as a settling basin. The brook which feeds these practically bisects a 1,400-acre water shed which is skirted on the two sides by highways on which are a few scattered farm buildings.

The mains are of cast iron from 3 inches to 12 inches in diameter, about 13½ miles in total length, 1¼ miles of which is of 3 inch pipe. Seventy fire hydrants are located on these lines, 137 stop gates and 21 blow-offs. In both Waverly and South Waverly combined there is an estimated population of 5,000 on the lines of the mains, all but about 500 of which are supplied with water through about 1,300 services, 325 of which are metered. (These figures are all about a year old, but are the latest available. During 1912 the number of meters was considerably increased.) The average consumption per inhabitant is about 108 gallons, or 64 gallons, if that used by the Erie and D. L. & W. Railroads, elevators and other special services be omitted. The cost of supplying water, figured on total maintenance, was \$25.60 per million gallons, or \$66.96 if interest on the valuation of the property be included.



LOWER RESERVOIR, DAM OF UPPER RESERVOIR IN BACKGROUND.

There appears to be little danger of contamination of the water from any buildings on the water shed, and the upper reservoir insures clear water most of the year. For a short time each year, however, algae appear in the water giving an unpleasant taste, but as soon as analysis indicates its presence it is readily removed by proper treatment.

In addition to adding meters, the village is extending water mains and in general improving the works as experience indicates the desirability.

PICNIC STOVES IN READING.

During the year of 1912 the city of Reading, Pa., enlarged Hampden reservoir property on which there now



PICNIC STOVE, HAMPDEN RESERVOIR, READING, PA.

stands a distributing reservoir with a capacity of 29,000,000 gallons, by purchasing about 80 acres of additional land for the location of another distributing reservoir whenever it shall become necessary, which probably will not be for some time. Meantime the unoccupied portion of the property is used as picnic grounds. During the year the water commissioners placed three picnic stoves in the grove southeast of the reservoir at a total cost of \$164.74. As shown in the illustration, these stoves are very simply and substantially made and furnish an opportunity for burning up lunch boxes and other rubbish and reduce the probability of injurious fires in the grove.

TRACTORS FOR FIRE APPARATUS

Effectiveness and Cost of Operation in Passaic.—Use in New York.—Comparison with Cost of Horses.

At the latest convention of the International Association of Fire Engineers, R. H. Bowker, Chief of the Fire Department of Passaic, N. J., read a paper entitled "Tractors for Steam Fire Engines, Aerial Trucks and Water Towers," in which he favored the use of tractors, in which opinion he was supported by Chief Kenlon of the New York Fire Department. The Passaic department has one 90-horsepower truck which pulls an aerial truck having a 75-foot extension ladder and weighing 10 tons; also an 80-horsepower truck pulling an ordinary size city truck. During the year from May 30, 1911 to May 30, 1912, the tractors cost an average of \$8.85 a month, while the horses used for the same apparatus had cost \$90 a month. The sum named in the case of tractors included repairs of every description, while in the case of horses it included only the feeding and shoeing and did not include harness repairs and veterinary fees, which would have brought the cost of maintaining the five horses up to \$100 a month. During the eighteen months that the two tractors have been in service there has not been a single instance when they had experienced any trouble in starting or in arriving at or returning from a fire. The tractor was very effective in pulling the heavy apparatus up the steep hills, making eight miles an hour on the steepest of them, and also in the winter season when snow and ice interfered with horse-drawn apparatus. In one instance, when it had been snowing continuously for twenty-four hours, a run was made through snowed-up streets, which had not been broken by traffic, at a speed of 15 miles an hour, which is about three times as fast as the best horses could have done under similar circumstances.

Chief Bowker preferred the tractor for steam fire engines rather than using gasoline for pulling power on the same frame with steam boiler and pump. In fact, all the auto hose wagons in the city are practically used as tractors, as the horses of the department have been entirely dispensed with and the steamers are drawn to the fire by auto hose wagons whenever they are needed.

Chief Kenlon stated that the New York department had definitely adopted the tractor, having more than 50 of them in use or ordered. One of the first of these was placed in service in connection with a second size engine, and in the six months from February 19 to August 19, it made over 500 runs and in no case failed to reach the fire when desired and in almost all cases in faster time than horses. In comparing the tractor and the horse from the financial point of view, this speaker took up the matter of interest and depreciation in each case. He assumed the tractor cost \$5,500 and a team of three horses \$1,050. Interest he assumed at 4 per cent., the life of a tractor he estimated at twelve years under New

York City service. The average life of a horse in the New York fire department is seven years. He thus makes a depreciation charge on the three horses of \$150 a year and an interest charge of \$36.75. Feeding and bedding he figures at \$380, veterinary service at \$50 and shoeing at \$120. This would make an annual charge of \$736.75 per year on the three horses, or about \$20.50 per month for a horse.

In the case of the tractor, he figured a depreciation at \$333 per year, interest \$140, gasoline and oil \$100, and repairs, \$100; making a total annual cost for the tractor of \$673—a difference on this basis of \$63.75 per year in favor of the tractor.

In other cities where conditions are not nearly so strenuous, the life of both the apparatus and the horse would probably be longer, and the prices for repairs, gasoline, etc., as well as depreciation would be correspondingly less, while the interest would be the same.

CITY SURVEYOR'S RECORDS.

Editor Municipal Journal.

50 Union Square, N. Y.

Dear Sir: Since I wrote the article entitled "The City Surveyor's Record," that was published in the Journal of Feb. 15, 1912, I have received a great many inquiries as to the proper form of keeping a city surveyor's record.

The form of keeping a record is not of so much importance so long as the records are legible and explanatory. The accompanying diagrams show the method of keeping a city surveyor's record of re-surveys that was adopted by me some twenty years ago and has given general satisfaction to all who have had occasion to use the records. The method shows distances, angles, the location of all permanent monuments, and just what the surveyor did. Figure 1 is a copy of block F of the original plat of Clintonville, Wis., and Figure 2 is a copy of a survey

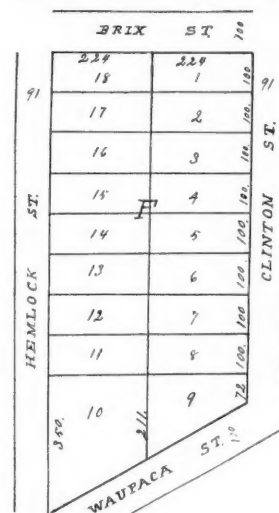


FIG. 1. ORIGINAL PLAT OF BLOCK F, CLINTONVILLE, WIS.

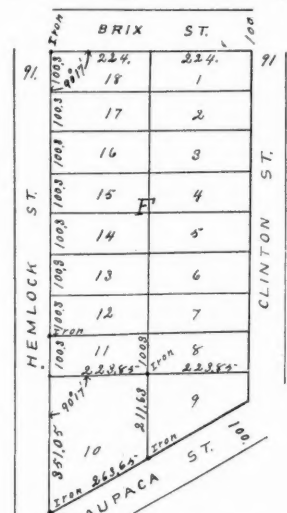


FIG. 2. PLAT AND FIELD NOTES OF RESURVEY OF LOT NO. 10.

EXPLANATION.

At the S. W. corner of Lot No. 10 I found an iron stake said to have been set by A. W. Johnson in 1885. After a careful survey I found that the stake set by Johnson was correct. At all points marked "iron" I set iron stakes for corners, except at the N. W. corner of Lot No. 18, which was set some years ago and recorded in a former survey.

made of lots 10 and 11, taken from the record of said survey.

The city official should bear in mind that nine-tenths of the litigation over boundary lines arises from the want of permanent monuments and a good legible record of them.

N. H. Smith, C. E.,

Oshkosh, Wis.

Municipal Journal

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Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

MAY 8, 1913.

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SEWERAGE SYPHONS.

The city of Pittsburgh, Pa., in connection with raising and improving streets in the West End which have been subject to almost annual floods, has constructed a 48-inch concrete intercepting sewer for removing pollution from a small stream and carrying the sewage to the Ohio river lower down. This interceptor was designed to carry the sanitary flow from a drainage area of nearly 20 square miles, providing not only for the present population, but for future growth also. An important and interesting feature of the design was a syphon by which the line was carried under the stream which had formerly been used as the sewer outlet for the district. This syphon consists of three lines, 10-inch, 20-inch and 36-inch respectively. This use of three lines of sewer of greatly differing sizes was adopted because the interceptor would receive the drainage from only a few thousand people when first completed, but it was anticipated that ultimately the district would contain about 200,000 people. These three sizes thus permit the 10-inch pipe to be used at first, following this the 20-inch alone, then the 20 and the 10, the 36 when these two are insufficient, and ultimately all three, if necessary. Thus the velocity of sewage in the syphon pipes could be controlled to a certain extent and prevented from falling below a self-cleansing velocity. Provision against stoppages which might occur in spite of this were made by so designing the structure that any of the lines can be cleaned out easily.

This construction is perhaps not particularly novel, and the idea is familiar to experienced sewerage engineers, but we refer to it because of the importance that, in designing inverted syphons in sewerage systems, the general principle should not be overlooked of insuring a self-cleansing velocity, remembering that siphon pipes must always flow full.

MERIT SYSTEM OF EFFICIENCY RECORDS.

Beginning May 1st of this year the merit system of keeping efficiency records of the municipal employees went into effect in the city of Pittsburgh, Pa. The system will be applied to every employee from borough chief to day laborer. The records will be kept in a card system under the supervision of the Civil Service Board and will form the basis for promotion or dismissal. Daily, monthly and semi-annually reports are to be made, copies of which will be filed in the office of the Civil Service Commission. Some additional clerical labor will be required of the several departments in making out these records, and in some of the larger ones, such as the water bureau, it may be necessary to employ additional clerks for this purpose.

Among the rules which it is intended to follow are the following: Estimates are to be based on facts only, and not on judgment. In marking "quality of work," give reasons specifically for any high or low mark, above 85 being considered exceptional; between 85 and 80, very good, and below 70 poor. The factors to be used in arriving at the quality of work done are ability, economy, activity and reliability.

HIGHWAY COSTS.

The Municipal Journal,
50 Union Square,
New York, N. Y.
Gentlemen:—

Your editorial on "Highway Costs" on page 625 in the issue of May 1, 1913, is particularly interesting to me, and I am gratified that no less an authority than yourselves supports the contention I have previously advanced to the effect that at present the reported costs of work are practically valueless outside the small circle of those engaged in compiling them in any particular case, and not as valuable by any means in those cases themselves as they should be.

It is unquestionably possible, through properly recorded and reported cost figures, to greatly advance the scientific side of highway engineering, but at present the scientific data dependent on such cost figures, and their comparison by different authorities and under varying conditions, is developing, but very slowly.

The importance of the subject has attracted some attention and is doubtless gaining more. Its advances will be hastened by such timely articles as your editorial above referred to, and the repetition of articles on the subject until the latter shall have taken the place in the attention of highway engineers that its importance demands.

If you will refer to my last report as Chief Engineer to the Maryland Roads Commission, a copy of which has already been sent you, you will find, on pages 114, etc., a discussion on this very question of costs with a detailed statement of the system devised and put into effect in our work. I also invite your attention to an article on this subject, printed in the Engineering Record for December 28, 1912, pages 719 and 720. You will note in the latter that I stated the fact "that the new system besides giving reliable and satisfactory information, where such was not available before, is allowing the books to be kept up by one moderately paid bookkeeper, when two men (one asking 50 per cent. more pay) were unable to keep the books up to date under the old system," which statement supports one of your contentions. I also presented a paper on the same subject to the American Society of Civil Engineers at its Special Road Meetings last January, and I hope that you may be able to find this latter paper published in an early number now of the Proceedings.

I should be glad to see you keep at this subject of "Highway Costs" until satisfactory standards for recording and reporting costs of work, both as to construction and maintenance, shall have been generally adopted.

With best wishes, I am, Very truly yours,
W. W. CROSBY.

NEWS of the MUNICIPALITIES

Current Subjects of General Interest Under Consideration

by City Governments and Department Heads

ROADS AND PAVEMENTS

Moultrie Wants New Paving Laid.

Moultrie, Ga.—The Mayor and Council are laying the foundation for a street paving movement, and to this end they have requested the city attorney to draw a bill for presentation to the next legislature, which will give the city power to assess property for a portion of the expense of paving the streets adjacent to it.

To Protect Highways.

Los Angeles, Calif.—The board of supervisors has ordered A. J. Hill, chief deputy district attorney, to draft an ordinance which will protect the county roads more adequately and prevent corporations cutting up the roads in laying pipes and then failing to repair the damage. The supervisors from now on will not issue any permits to corporations to lay pipes unless the applications are approved by F. H. Joyner, chief county highway engineer.

Women Build Sidewalks.

Westhampton Beach, L. I., N. Y.—The Village Improvement Association, composed of women, is asking for bids for the construction of a concrete sidewalk and curb facing the properties of the Seaside Bank and the Union Chapel Association on Old Mill road and Main street, a distance of 100 feet. For this purpose the sidewalk has been cut down to the street level and work on this much needed improvement will start as soon as the bids are in from the contractors.

Conconully To Have Good Road.

Conconully, Wash.—With a force of 100 men at work, construction of the first permanent highway in the Conconully district has been started. The road, which will cost several thousands of dollars, will stretch from Riverside to Conconully and according to the Good Roads Club of Riverside, will be one of the finest roads in Washington.

450 Convicts Going to Roads May 1.

Richmond, Va.—On May 1 there will be an exodus of convicts from the city, when no fewer than 450 will be sent to the roads. That is what the last legislature ordered and directed. That more than that are not sent is due to the fact that there is a lack of funds with which to guard, transport and feed and clothe the men. May 1 at 6 o'clock in the evening the contract with the Thacker Shoe Company comes to an end. The state will not again engage in that business.

Brick Popular in Jacksonville.

Jacksonville, Fla.—One of the most important of all the reports submitted is that of Engineer John C. Ballenger, of highways. In a list of streets, showing the kind of paving, area, price per square yard, total cost and many other items, the totals for streets completed during 1912 (those completed during 1911 also given) show 129,484.56 square yards, a length of 32,553.93 and a total cost of \$242,384.35. With a single exception vitrified brick was the material used. The construction of a concrete base and extensive repairs and new paving ordered and completed, form interesting parts of this report of many pages.

Another important feature is the report on street lines, surveys, grades, etc., furnished, all looking to a better and more uniform city. Also there are furnished preliminary estimates on a long list of streets for future paving. Added

to these are the final estimates of sufficient breadth to admit of bids being received on various materials.

May Put Convicts at Road Building.

Baltimore, Md.—On motion of Governor Goldsborough the State Roads Commission adopted a resolution providing for an appointment of a committee of three members of that body to confer with the directors of the penitentiary to ascertain whether it would be practicable to employ convicts on the public roads. The idea is that where there is heavy construction, such as an unusual amount of grading that is hardly justifiable from the point of cost under the usual conditions, it might be possible to use the convicts.

Paving Work Begins.

Port Arthur, Tex.—The first real paving work at Port Arthur began when the Eureka Construction company laid the concrete foundation for the asphalt to be laid later on Proctor street. Under existing contracts Proctor will be paved a distance of seven blocks to the intersection of Houston avenue and the latter will be paved a distance of four blocks. Asphalt will be used on both thoroughfares. The Port Arthur Traction company will be required to pave its right-of-way along these two streets named. Work of lowering the tracks eighteen inches, as required by the city, has nearly been accomplished on Proctor.

Roads Will Be Improved by Convict Labor.

Frederickburg, Va.—D. F. O'Neil, assistant superintendent of the State convict road force in Richmond, has made arrangements for a convict road force camp to be established in Stafford County to work on the roads in that county, the work to begin at once. He selected a site and the forty prisoners and two carloads of equipments will be brought to Frederickburg. Later a camp will be established in Spotsylvania County.

Earth Highway is Plan.

Brigham City, Utah.—The first stretch of the state road in Box Elder county will be completed this year, according to plans of the state road commission and the officials of Box Elder county. The first stretch includes the twelve miles from Hot Springs to Brigham City. Four miles were built in 1911 by convicts. The material used was crushed rock, which made an ideal highway. The officials in going over the route of the proposed road have decided upon a less expensive method in constructing the remaining eight miles, and first-class earth road will be substituted. In the party that made the trip of inspection were State Road Commissioner J. W. Jenson and Commissioners, T. H. Blackburn, J. E. Conley and Alan Roche.

Prisoners at Work on Roads.

Kalamazoo, Mich.—In the future all drunks and vagrants will be sent to the good roads farm, instead of to the county jail. This was decided at a meeting of the grounds committee of the supervisors. Instead of law violators getting a sentence of 10 days in the future they will be handed 30 or 60 days and will be obliged to put in the time at good, hard work. At the farm a building 60 by 150 feet is being erected and prisoners will make tile, to be used on the roads. Others will be given employment at road building. Good Roads Commissioner W. M. Bryant believes that by giving the men longer sentences and making them work hard a great deal of petty crime would be done away with. While at work at the farm the prisoners will receive pay, but the money will be turned over to their families.

Will Construct Road in Lauderdale.

Florence, Ala.—Lauderdale county has the distinction of being the first county in the United States to take advantage of the government appropriation of \$10,000 annually to be given to each state complying with the conditions imposed for the construction of post roads. The conditions were that the county appropriate \$20,000 and designate a road of thirty miles in length. Government engineers Harrison and James arrived in Florence to arrange the final preliminaries, and Probate Judge James F. Koonce called a meeting of the county commissioners to sign the contract between the county and the agricultural department. Thereafter, it is expected the work will begin at once with Engineer Harrison in charge of construction.

Traffic Regulation.

Pittsburgh, Pa.—Council is considering the request of the director of the Department of Public Safety, John H. Dailey, of going further in the one-way traffic in the downtown street, where there is much congestion. This scheme has been worked for years on Wood and Smithfield streets with great success, and Mr. Dailey recommends that it now include Liberty and Penn avenues, as far east as Thirtieth street. The law makers are now considering reports of the city solicitor as to their limitations in regulating traffic, and will likely take some action soon. The solicitor believes that the council can regulate traffic if it so desires. The ordinance now in force gives this power to Director Dailey.

SEWERAGE AND SANITATION

Inundation of Filter Plant Causes Epidemic.

Albany, N. Y.—A score of new cases of typhoid fever in Albany were reported, bringing the number up to 100. Two deaths have occurred. The spread of the disease is attributed to the inundation of the city's filtration plant during the recent flood. The administration of typhoid vaccine to members of every household in Albany in which there is a case of typhoid is urged by Dr. Eugene H. Porter, State Health Commissioner, as a means of checking the epidemic. Dr. Porter has sent a letter to Albany doctors, asking for their support "in placing the present outbreak under control."

Complete Big Sewer After Year's Labor.

Erie, Pa.—Completion of the 24-inch drainage sewer in Nineteenth street from Chestnut street to Mill Creek intercepting sewer is reported by Contractors J. & M. Doyle. The sewer has been one of the hardest to build in the history of the city, according to the contractors, who say that a network of pipes on the upper cuttings and a thickness of rock on the lower level have kept them since last year in getting the work put through. The sewer is twenty-four inches in diameter and is calculated to keep the heavy wash of storm water from the streets on the hills south of Nineteenth street and overflowing the sewers of the Second and Third wards west of the creek valley.

Atlantic City Starts an Anti-Fly War.

Atlantic City, N. J.—Atlantic City lined up to swat the fly, as well as the mosquito, this coming summer, and swat it right. The county has appropriated \$26,000 to eliminate these insects. At a public meeting it was decided to offer prizes to the best fly swatter and to bill the town and show moving pictures of the danger of the fly. These citizens were named to take charge of the campaign: Dr. Thomas Youngman, Dr. W. Blair Stewart, Dr. Clara Bartlett, Mrs. J. T. Beckwith and Miss Jennie Ellis.

Buys 12,000 Dead Flies.

Cleveland, O.—Fly swatting records for the season were shattered when twelve thousand dead flies were piled up on the table at campaign headquarters in the basement of the old gas office, Superior avenue, Northeast, east of the city hall, and the general fund was depleted by \$12 in payment for them. St. Clair school, with 9,150 flies to its

credit, headed the list. Miss Molly Steurer's room, in St. Clair school, contributed 2,200 swatted flies. Children of three parochial schools, St. John's, Annunciation and St. Peter's, also came to headquarters with the results of their swatter wielding.

Five Cents Per 100 for Flies at Rome, N. Y.

Rome, N. Y.—Mayor S. E. Townsend, of Rome, in conjunction with the Rome chamber of commerce, has designated May 12 as clean-up day for the city. As an added feature of the occasion the chamber is to distribute 1,000 fly swatters and will pay five cents per one hundred for flies swatted and delivered during the next three weeks. The person bringing in the largest number of flies will receive a \$5 gold piece.

Begin Work on Sewers.

Dodge City, Kan.—The city commission has passed an ordinance providing for the construction of a city sewer with five trunk lines. The plans and specifications were drawn by Fred Eckert, city engineer of Larned, and passed by the state board of health. The ordinance authorizes the city clerk to call for bids as soon as it becomes a law. Mr. Eckert's specifications of \$18,000 will be the maximum limit on the bids. The sewer as planned will have sufficient capacity for from 10 to 15 years service without change. The ordinance is the result of a bitter fight for a sewer lasting for nearly a year.

Sewage Commission Bill Indorsed for Passage.

Madison, Wis.—The senate committee on education and public welfare voted to recommend the Weigle Milwaukee sewage commission bill for passage. This bill, which creates a sewage commissioner to handle the sewage problem in Milwaukee, was given a hearing before the committee last week. At that time there was a large attendance of Milwaukeeans and some spirited verbal passages at arms.

State Starts Action to Stop Pollution of Delaware.

Trenton, N. J.—Upon the claim that sewerage into the Delaware by the town of Phillipsburg is harmful to residents of the municipalities along the stream, from Phillipsburg to Delaware Bay, Assistant Attorney General Gaskell appeared before Chancellor Walker and asked for a permanent injunction to restrain the town from emptying its pollution into the river. The situation in Trenton was especially brought to the Court's attention and it was pointed out that the health and comfort of its citizens could not help but be affected by this action on the part of the upriver town. Former Supreme Court Justice Gilbert Collins appeared for Phillipsburg and questioned the jurisdiction of the state board of health to order the town to discontinue sewerage into the Delaware. He said that the authority of the state did not extend to the river and Mr. Gaskell answered by relating the dispute between New Jersey and Delaware as to the boundary line between the two States. New Jersey has always claimed jurisdiction to the middle of the river and he held that the state board was perfectly within its rights in the present instance. Decision will be announced later.

Sewerage System is Completed.

Lake Charles, La.—After inspections and a series of tests extending over several weeks, the new sewerage system has been formally accepted by the board of sewerage commissioners and will be placed in operation within a week or so. The inspections were made by Walter G. Kilpatrick, engineer in charge, and his assistant, J. E. McCorkle.

Certain kinds of house connections are required by the state board of Health in order that public safety may not be endangered through defective workmanship or incompetency in the installation of plumbing fixtures. Grease traps to catch waste oil are necessitated and care must be taken that the connections are such as not to permit the escape of sewer gas back into the house. Work on the sewerage system has been carried on for the past eighteen months, under charge of H. C. Reeder and Alexander

Chisholm, of the Southern Asphalt and Construction Company, of Birmingham, which secured the contract. The time given the contractors for completing the system expires this month, and the work was performed just within the time limit. The system cost \$160,000 and embraces 27 miles of piping.

WATER SUPPLY

Will Clean Reservoir by New Method.

Harrisburg, Pa.—A new method will be used in cleaning the larger of the city reservoirs when the work is started by the Water Department about the middle of May. When the cleaning was done several years ago it took a month; Superintendent Kennedy says by the new method the cleaning can be done this time in a week or ten days. A pipe line has been laid around the big reservoir and this has been connected with the reservoir on Oak Nob. Openings in the pipe will allow the sides of the reservoir to be flushed so that all the dirt and mud that has collected in three years can be washed into the sewer. A wall in the middle of the reservoir reaches to within ten feet of the normal height of the water. One half will be emptied and cleaned at a time. The wall will hold about 4,000,000 gallons of water, sufficient to supply the city.

Great Reservoir Will Be Erected.

Alexandria, Va.—The Alexandria Water Company will begin the work of constructing a dam and reservoir at Bancroft, Fairfax County, which will cost \$125,000. The contract for the work has been awarded to the Piedmont Construction Company, of University, Va. The dam will be of concrete masonry and will be 600 feet in length, fifty feet wide at the base and seventy feet in height, and will cover seventy-five acres. It will be six and one-half miles around. The reservoir will have a capacity of 600,000,000 gallons of water, which, it is declared, will be a sufficient supply for the city for a period of two years. D. J. Howell & Sons, of Alexandria, are the engineers.

Pay For Damages Done by Electrolysis.

Altoona, Pa.—Litigation of seven years between the city and the Altoona & Logan Valley Electric Railway ended in the company agreeing to install a system that will prevent the escape of electricity to the municipal water mains, thus destroying them. The company will also pay what damage has already been done, aggregating between \$100,000 and \$150,000.

City Without Water.

Toledo, O.—Entirely deprived of water and left at the mercy of an epidemic of fires, with many of its public utilities crippled into inaction, the safety of Toledo for several hours after noon May 1 was jeopardized. A break in the 30-inch Hawley main at the municipal pumping station at 11.45 completely disrupted the city's pumping system and suddenly cut off completely the city's water supply. When the main burst, at the edge of Broadway, directly before the pumping station, a geyser of water was thrown 30 feet into the air and descended in a deluge on the sunken pumps of the plant. Within less than half an hour 20 feet of water had almost entirely submerged the four pumps, by which filtered water is distributed through the city's mains, and the plant was rendered completely useless. For more than an hour water streamed into the pumping station through a 24-inch tributary main and from the up-ground overflow which gushed from the broken main and dug its way through the surrounding terrace about the pumping plant. A force of workmen were employed installing a new section in the 30-inch Hawley main just inside the pumping station grounds. The break occurred just on the outside of the large emergency valve which protected the men and made possible the temporary cut-off of the principal main. When the break occurred and the spectacular flow of water succeeded the report, workmen in the pit before the exposed main scrambled to safety and in so doing avoided drowning in the 15-foot-keep-hole which was filled to overflowing within a few seconds.

By the break the pumping station almost immediately was rendered useless. The city's supply of water was cut off abruptly and without notice. When all pumps stopped and became inundated fires were drawn from furnaces to prevent damages to pipes in the boilers. Only recourse was prompt action at the filtration plant in cutting off all water proceeding from that point to the pumping station. Not until all water enroute from the filtration plant to the pumping station had passed through the broken main and the 24-inch flood outlet was it possible to remove the flood waters that buried the pumping engine pit and to start repairs tending to restore service. When the deluge had spent itself, almost two hours after continuous inflow following the break, water in the engine and pumping rooms of the station were syphoned out and two of the four pumps were started in removing the wrecking flood waters shortly after 1 p. m. Several fire alarms forced the department to use chemicals and to depend on procuring what meagre supply of water remained in disabled mains. Without great delay water was pumped from the Broadway main, downtown, and slight but insufficient supply within a limited district was supplied by two old and small pumps.

After an investigation Superintendent Goodwillie said that the break was caused by the pulling out of a joint. The spigot end instead of the usual head had an iron band fastened to it. This gave way and the pipe line buckled.

New Water Line.

Utica, N. Y.—West Canada Creek water for the entire city of Utica is to be made possible by a new pipe line of six miles in length and an equalizing reservoir constructed on the William Watson farm in Marcy. The Consolidated Water Company will file with the clerk of Oneida County a map showing the new line taken by the pipe on its way from Marcy Summit to the intersection of Champlin avenue and Whitesboro street in Utica. Instead of being supplied with water from two sources, the city of Utica will now have three supply heads with the newest one capable of throwing 20,000,000 gallons of water a day into the city, with a potential full pressure of 200 pounds. One of the most interesting features of the pipe laying will be the placement of two short lengths of pipe in the river flats. The first will be of steel and the second of ingot iron, a new pipe product which, containing more pure iron than the steel, is thought to be most superior. These two lengths will be placed for test purposes, and the amount of service given by them compared in ratio to that of other pipes.

Improvements at Rock Hill.

Rock Hill, S. C.—A \$100,000 addition to the water works plant, which is owed and operated by the city, is now under way. A pipe line will be run from the Catawba River, five miles away, and water will be pumped into the city, filtered and then forced through the city main. A \$100,000 sewer system was recently completed, and nearly all of it is now in use.

Bursting Water Main Causes Damage to Property.

Louisville, Ky.—Property damage amounting to approximately \$5,000 resulted when a forty-eight inch water main in an alley near Eighth and Oak streets burst, flooding the vicinity for a block around. Because of lack of water, every street-car line in the city, except the Fourth street line, was out of commission for from fifteen to forty-five minutes, the power house of the Louisville Railway Company, at Campbell and Finzer streets, being forced to cut off the current. The big main runs through the property of the Turner, Day and Woolworth Handle Company, Seventh and Dumesnil streets, and it burst alongside the box shop. The great volume of water undermined this building and part of it was washed out. Several thousand dollars worth of stock was washed away. The firm estimates its damage at about \$4,000. It was the heaviest sufferer and for several hours water stood eighteen inches deep in its plant. The plant was put out of operation. Employees were laid off until the water could be pumped out, the wrecked building restored and the stock recovered. The main, which was laid five years ago, was in good condition as far as can be ascertained and the Louisville

Water Company engineers are at a loss to account for the break. The pipe was recently tested and was able to withstand a pressure of 300 pounds to the square inch. The pressure at the time of the accident and usually was but eighty pounds, and the gauge showed no increase.

STREET LIGHTING AND POWER

Lighting Plant Nears Completion.

Donaldsville, La.—Nearly all the new machinery for Donaldsville's modernized electric light and waterworks plant has been received and installation is now under way. The engines are being erected by R. J. Miller. The new power-house building is nearing completion, the contractors being now at work putting on the corrugated iron roof and applying the finishing touches to the structure. The floor, which will be of cement, will be laid after all the machinery has been placed. It is expected the new system will be in operation about the 1st of June.

Will Erect Ornamental Trolley Posts.

Massillon, O.—Telephone, electric light and trolley wire poles are to be removed at once from Main street between Mill and Clay streets. Negotiations conducted to this end with the several companies by Service Director H. W. Elsass and City Engineer Yost have been successful. The Massillon Electric and Gas Company and the Central Union Telephone Company will string their wires in alleys and side streets. The Electric and Gas Company has already started the work by bringing its feed wires up Canal street instead of South Erie street. The Massillon Telephone Company is now placing a conduit under East Main street at the intersection of Gold alley to take care of the cables that cross the street at that point. The N. O. T. & L. and the Massillon Electric and Gas Company will place ornamental iron standards in the street to support the trolley and high tension wires. The standard is constructed in such a manner that an ornamental electric light can be placed on it. Plans for the street lights have not yet been completed. The only wires in Main street will be the trolley and high tension wires.

More Light at Marshall.

Marshall, Tex.—The street lighting of Marshall has been improved considerably and now North Washington avenue at night is almost as bright as day. An arc light has been installed at the intersection of North Washington and Burleson streets, which has helped conditions wonderfully, and more incandescent lights are being installed in various parts of the town. The Texas and Pacific Railway has put quite a number of lights along the new subway to the passenger depot and conditions there have been improved.

FIRE AND POLICE

Women Appointed on Police Force.

Topeka, Kan.—The immediate appointment of two women members of the police force has been decided upon by the city commission, acting on suggestions from the woman's advisory board. The idea was started by the Rev. Charles M. Sheldon, who is taking active interest in the municipal affairs of his home city. The woman's advisory board of Topeka was appointed by Mayor Cofran recently. Its functions are to confer and work with the city commission.

Light to Call Police.

Caldwell, N. J.—Arrangements have been made whereby a light displayed in the window of the central telephone station will serve as a signal for the three policemen who are on night patrol duty. The plan will go into effect on May 1. Any resident who needs a policeman at night will call up the telephone central, and the night operator will display a light. The beats of the three policemen, including Chief John Harkey, are so arranged that one of the three passes within sight of the telephone station at intervals of fifteen minutes. The system was devised because

the borough authorities had been importuned to employ a fourth policeman, who would be on duty at the Town Hall at all hours of the night. It was decided that the maintenance of an extra policeman for this purpose would be too expensive, and Councilman Bloch's scheme was adopted.

Police Women Appointed.

Los Angeles, Cal.—Two "plain clothes" patrolwomen will walk beats in the down-town districts of Los Angeles at night, beginning May 1. This innovation was announced by Police Chief Sebastian, accompanied by the statement that the policewomen would devote most of their efforts to the protection of girls. Mrs. Alice Stebbins Wells, who claims the distinction of being the first policewoman in the United States, and Mrs. Rachel Sheatto, for some time a police matron, will be the pioneer patrolwomen. They will visit dance halls, skating rinks, "movies" and cafes.

Paris Police Use Hand Cannon.

Paris, France.—The Paris police department is now equipped with what is considered an effective weapon for use in dislodging automobile bandits or other criminals who barricade themselves in houses and defy capture, which is a habit the Paris "Apaches" have developed quite extensively in recent years. In two recent affairs of this kind the bandits kept the police off several days. The weapon is a hand cannon, designed particularly for throwing bombs, which, when they explode, will fill a building or room with suffocating gases sufficiently powerful to overcome the occupants. The cannon looks like a piece of iron pipe, and may be carried in the hands or slung over the shoulder like a rifle. It can also be used as a fire extinguisher, for throwing life lines into the upper windows of burning buildings, forcing doors open by hurling heavy projectiles, and throwing grenades in war time.

Adopt Fire Alarm System.

Boyertown, Pa.—Boyertown Councils have adopted the fire alarm system, and eleven stations will be established, the whistle on the local electric light plant being used to sound the alarm.

Fire and Police Cable System in the Flood at Dayton.

Dayton, O.—The flood put to the most severe test the fire and police telegraph system of Dayton, and the way the underground cables and apparatus came through the ordeal is conclusive evidence of the high degree of refinement to which their manufacturers have carried their product.

The Gamewell Fire Alarm Telegraph Company had furnished the apparatus, and the cables for the system were manufactured and installed by the Safe Insulated Wire and Cable Company of New York. The Gamewell Company had a corps of engineers and workmen on the ground as early as possible after the flood occurred, and found the fire alarm and police signal systems entirely out of service. The Central Office, which is on the second floor of Fire Department Headquarters, escaped injury, the troubles being due to the break-down of outside lines.

The damage to the aerial lines was very great, the poles in many cases being sheared off like pipe-stems. But the "Safety" Cables were not affected, except where they crossed the bridges or were broken off at the boxes. As soon as the manholes were pumped out and the breaks closed, the entire fire alarm system was in working order. The potheads used in installing the system left the cables perfectly good, except where line wires were broken when the boxes were torn from the pedestals. The ends were spliced with but little trouble and expense, making the cable system as good as new. The pedestals for the boxes stood up perfectly, not one of them being broken down by the flood which carried away trolley and electric poles everywhere.

This experience at Dayton should be an object lesson to those towns and cities which have not yet placed their fire and police cables underground, but which are courting disaster by leaving them exposed overhead.

MOTOR VEHICLES

Clifton Has Auto Fire Truck.

Clifton, Tex.—The Clifton fire department has installed a new auto truck. The Department is now well equipped with ample apparatus and new hose.

New Auto Truck in Commission.

Fort Wayne, Ind.—The auto ladder truck purchased by the board of safety from the Robinson Company, at St. Louis, has been put into service at No. 2 engine house after having been given a preliminary tryout. The truck carries over 200 feet of ladders, weighs 9,000 pounds and has an eighty-two horse power motor. It is a solidly built, compact machine that is capable of turning corners at a high rate of speed without danger of capsizing and will be used in making runs to all the district south of the railroads. Price Lane, the agent that sold the machine, in a letter to Assistant Chief George Jasper, tells about three of the Robinson Company's gasoline pumps working 108, eighty-seven and seventy-two hours each pumping water at Youngstown, O., after the flood for the purpose of clearing the light and water plants.

Test Runs Made of New Fire Autos.

Portland, Ore.—The three La France auto combination chemical and hose wagons, recently purchased, gave a very satisfactory test when tried out before a crowd of city officials and fire apparatus men. Many miles were covered in the run, both up and down steep grades and on level roadways. The hill climbing test was most satisfactory, the speed on a 20 per cent. grade greatly exceeding requirements. The autos on a level were required to reach a speed of 50 miles an hour, and one of them reached 58½, a second 50½, and the third 44 miles. Five similar machines ordered from A. G. Long will soon arrive in Portland from the factory, and two Pope-Hartford combination chemical and hose wagons also will soon be ready for testing. Besides Chief Dowell, Battalion Chief Holden, Assistant Chief Laudenklos and the members of the fire committee of the City Executive Board and a number of fire apparatus men participated in the run of the machines.

Automobile Fire Truck Effects Great Economy.

Moline, Ill.—That it costs the city of Moline less to maintain an automobile fire truck of superior efficiency

than it did to maintain a team of horses, is stated in the report of Commissioner E. L. Eastman of that city to the council, and he recommends another motor hose truck of 80-horse-power for use at the central station, the present truck then to be transferred to the No. 4 station. In his report Mr. Eastman says, "The cost of operating the motor truck has been 30 cents a day, which will amount to \$109 a year. The cost of maintaining a team of horses, including feed, horseshoeing and veterinary service for the same period has been \$300.

Motor Truck Built at Sing Sing.

Ossining, N. Y.—The convicts of Sing Sing prison have constructed a complete motor truck, which, the prison officials believe, is the first motor vehicle ever built within prison walls. Having built it, the prison authorities were determined to sell it, so it was offered to the street-cleaning department of New York for \$5,000.

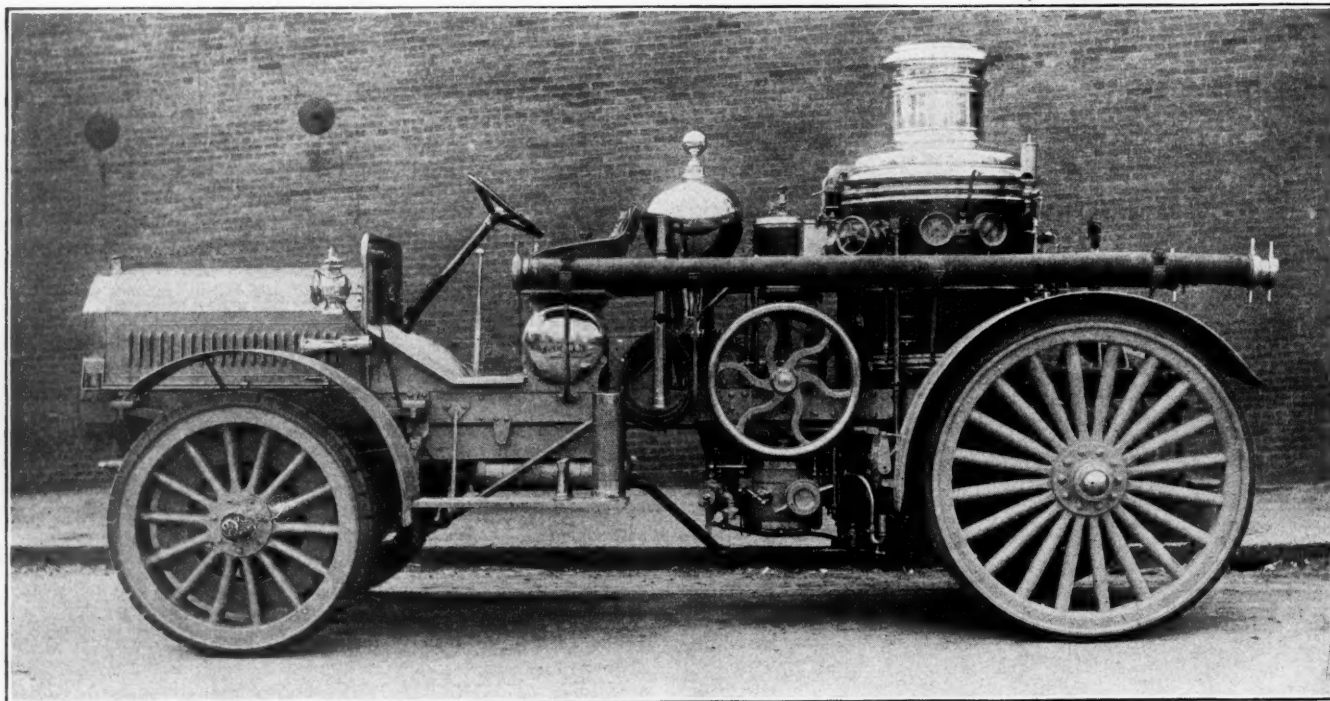
Apparatus First of Its Type Brought into Providence.

Providence, R. I.—The first motorized steam fire engine to be seen in Providence made its appearance on the street recently. A test was made of its speed and efficiency and was witnessed by Chief Weeks and several officials of the Providence Fire Department and they were very much pleased with the demonstration, as the machine worked very satisfactorily in every way.

It is the Hoadley Front Drive Tractor with gasoline-electric equipment attached to a First Size Amoskeag Steam Fire Engine, both of which are built at the Corliss Works of the American and British Manufacturing Company, Providence, R. I.

This front drive tractor can be attached to any piece of fire apparatus or trucks of any description—practically without taking the apparatus out of commission, which is a point of great importance.

It is claimed that in this gasoline electric machine, the gas engine is not subject to the shocks and strain that must be met in a mechanical transmission outfit. It has also been demonstrated that a gas electric fire engine can be stopped on a 15 per cent. grade by simply reducing the speed of the engine and started again by slowly increasing its speed until voltage is raised sufficient to overcome gravity and road friction. It is also claimed that a gas electric tractor for a fire apparatus is handled in narrow streets and congested districts easily, the two wheel front drive practically eliminating skidding. It occupies less



FIRST SIZE AMOSKEAG STEAM FIRE ENGINE AND HOADLEY FRONT DRIVE TRACTOR.

space than required for horse and wagon apparatus and by eliminating chains, sprockets, sliding and reverse gears, it reduces the upkeep to a minimum. Rough or snow-covered pavements, heavy grades and low temperatures do not effect the progress of this machine. The current consumption is increased and the speed decreased in proportion to the severity of the above conditions, but not sufficiently to cause undue strain or injury to any part of the mechanism.

A speed of 25 miles an hour was attained, a four-cycle, four-cylinder gasoline motor being used with lubrication by the splash system and the ignition is by the Bosch high-tension dual system. The engine is direct-connected to a generator and will run with a load 200 per cent. in excess of its normal rating. It is equipped with a controller designed for a maximum efficiency with the motor and gear reduction. Two speeds forward and reverse of the continuous torque, drum type. The controller is located under the footboard where it may be given attention when necessary without delay. The electric motors are especially designed as to yield their highest efficiency at normal load; also to be very efficient at a high overload, to which the motors are subjected when traveling over a heavy road or up a steep grade. The motors are mounted on a solid forged axle knuckle and are outside of the road wheels. This method of mounting allows the motors to swing with the wheels and the general arrangement of the motors is such that they may readily be inspected. The axles are solid section forgings both for front and rear. The front axle is of a frame construction with radius rods connecting top and bottom to the frame. The axle design is specially adapted for fire apparatus service. The wheels are 4 and 5 feet in diameter of the artillery type, mounted on Timken roller bearings and have solid Firestone rubber tires with dual notched tread on the front wheels. The large steering wheel is on the right hand side of the chassis. The service brakes are strong and powerful and operated by a foot pedal or by a hand lever with a notched quadrant for locking the brakes, external contracting and acting on drums on the rear wheels. A double reduction transmission is used applying the power to opposite sides of the wheel rims. The first reduction is effected in oil tight gear casings, securely bolted at each end of the motors and allows for the installation of sturdy, wide-faced gears. The second reduction is made by a rack and pinions on opposite sides of the wheel rim. The housings enclosing the rack and pinions are light and neat, giving ample protection. The wheel base of the machine is 12½ feet and a feature of the design is the wide track or gauge, thereby insuring safety in turning sharp corners, etc. The boiler is designed to carry 125 pounds of steam and is used as a back bone to carry the steam cylinders and the pumps.

The pumps have large outlet gates so that 3-inch hose may be used and the fire engine is equipped all ready for fire service with play-pipes, nozzles, lanterns, suction hose, reducers, hydrant connections, tools, fire shovel and poker. The machine equipped and carrying a full crew of men tips the beam at 15,500 pounds. The front seat accommodates two men and in the rear there is room for the engineer and firemen. A foot-button on the foot-board operates a powerful electric driven Sireno horn giving a distinctive and penetrating alarm.

Solve Problem By Purchase of Three Engines.

Newark, N. J.—To get out of their dilemma, which resulted from ignoring the low bid of the Dixon Cascade Company, on an auto fire engine, the Fire Board has decided to purchase three such machines, although a few weeks ago it decided that only two were necessary. This action was decided at an impromptu special meeting held after a conference in Mayor Haussling's office. The board was placed in an embarrassing position by awarding contracts to the Webb Company and the American-La France Company for the purchase of two auto engines. The former's bid was \$8,000 and the latter's was \$8,500. The bid of the Dixon Cascade Company, a local concern, of \$8,000, was disregarded by the commissioners who were raked over the coals by Mayor Haussling and City Counsel

Nugent, Mr. Nugent refusing to execute the contracts as awarded because the American-La France Company was given preference over the Dixon Cascade Company. At its last meeting the Fire Board dodged the question, although Mr. Nugent had directed that advertising be authorized for new bids, directing that the low bids be recognized. Since that meeting, however, the commissioners have held another conference with Mayor Haussling and Mr. Nugent. It was represented by the commissioners that the local concern had been turned down because criticism had been made in other cities about its product. As it was shown that similar criticism had been made against the engines of the other two companies Mr. Nugent suggested that all the machines in question be given a fair trial at least before any one of them was condemned. The board took to this suggestion and without readvertising for bids it voted to buy a Dixon Cascade engine as well as the other two.

Aerial Truck for Wilmington.

Wilmington, Del.—The Delaware Fire Company has closed a contract with J. A. Prescott, of the Webb Automobile Fire Apparatus Company, of Allentown, Pa., for an aerial automobile truck 90 feet in length. The purchasing committee of the Delaware company consisted of Charles Shell, chairman; George H. Taylor, secretary; William Hickman, Thurston M. Lowe, Samuel P. Green, John J. Barden and William A. Ruth. They witnessed several demonstrations of the operation of the Webb apparatus in Philadelphia and Allentown. The contract calls for the delivery of the truck by August 10. The type of aerial truck ordered is now in use in New York City, Newark, N. J.; Trenton, N. J.; Washington, D. C.; Calgary, Canada; Butte, Mont., and Springfield, Mass. An interesting feature of the apparatus is the manner in which the main ladder is raised. This is performed by the electric motor which is supplied by current from the main generator and raises the main ladder, which is 50 feet long, from horizontal to vertical position in four seconds. The entire 90 feet of the ladder can be raised in 20 seconds.

GOVERNMENT AND FINANCE

Vote Against Commission.

Marietta, O.—By a vote of 408 to 218 Marietta voted down a proposition to adopt a commission form of government for the city. Less than 20 per cent. of the vote was polled.

Reject Commission Form.

Sisseton, S. D.—At a special election held in Sisseton, the voters rejected the proposition to adopt the commission form of city government by a large majority, the vote standing: Yes, 25; no, 183.

New Brunswick Rejects Commission.

New Brunswick, N. J.—Commission government was beaten in New Brunswick by a majority of 68 votes. This was the second attempt in New Brunswick to introduce the new system. The defeat of the plan is ascribed to the organization of office-holders who are almost all Democrats. Mayor John J. Morrison, Republican, headed the movement.

Houston Extends City Limits.

Houston, Tex.—Taking advantage of the act passed by the last Legislature authorizing cities situated on navigable streams to extend by ordinance their boundaries so as to include such navigable streams for a distance of twenty miles or less, in order to properly provide and safeguard harbor facilities, the city council in adjourned session passed an ordinance extending the eastern limits of the city of Houston a distance of twenty miles along the Houston ship channel. The new limits as defined by the ordinance will place the city limits somewhere in the neighborhood of San Jacinto battlefield on the ship channel. About half of Harrisburg is included in the new boundaries.

STREET CLEANING AND REFUSE DISPOSAL.

Test New Crematory.

Macon, Ga.—The new incinerator erected by the Nye Incinerator Company on the Macon reserve will be given a further test. The tests of the plant so far made have not proven that it comes entirely up to the claims made by the company. It is claimed that it has not been possible to give the incinerator a thorough test, because a sufficient amount of garbage has not been accumulated.

Crematory Burns.

Wilmington, Del.—The destruction by fire on the evening of April 27 of the plant of the Wilmington Sanitary Company leaves the city without an incinerating and reduction plant in which to dispose of the tons of garbage collected every day. Officials stated that collections will continue, and the garbage will be stored until repairs to the plant have been made. This will take several weeks. The company's former plant was burned to the ground on April 7, 1911.

City Planning Expert Will Visit Hamilton.

Hamilton, O.—When Dr. H. F. Hegeman, the German city planning expert, visits Hamilton on May 14, he will be asked to address himself to the new condition of the river bank and to offer suggestions for the beautification of the city. The flood, disastrous as it was, makes the planning of the city, from a scientific standpoint, an easier matter.

Dr. Hegeman was to have delivered an address, but it has been suggested that the time be consumed in an inspection of the city and in consultations as to the best way to beautify the new Hamilton. The problem of improving the city from an esthetic standpoint is now receiving some attention, since the suffering has been relieved. There have been many suggestions made that the city acquire all of that property on the west side of the river from the Champion Coated Paper Company to Millikin street and west to B street. A street was practically obliterated by the flood.

Collect 4,500 Tons of Refuse in Clean-Up.

Washington, D. C.—Six thousand one hundred and thirty cubic yards of miscellaneous refuse were deposited at the District of Columbia refuse crematory and Benning dump during the last week's sanitary campaign, according to a report made to the clean city committee by M. R. Ready, District refuse contractor. The weight of the material is estimated at approximately 4,500 tons. The refuse was brought in from every section of the city, not only by the contractor's wagons but by private teamsters. Despite unfavorable weather conditions which obtained at the beginning of the campaign, Mr. Ready states that his plant was kept busy every day handling the extra amount of trash brought in and that it is his opinion Washington never has undergone so thorough a cleaning.

Police Give Out Clean-Up Notice.

Richmond, Va.—Carrying out the instructions of Chief of Police Werner, policemen have begun the distribution of hundreds of notices, issued by Chief Health Officer E. C. Levy, calling upon all citizens to enter fully into the spirit of the "cleaning-up fortnight," May 5 to 17. Major Werner announced that one of these circulars will be placed in every home in the city. He is deeply interested in the movement and will aid it in every possible way.

Will Observe Clean-Up Day Annually.

Lynn, Mass.—Clean-up day will be a permanent institution in the future. The board of health decided, after the unqualified success of clean-up day that at least one day in the year would be set aside as a general scouring day, and hopes that in the course of two years there may be two such days a season, which will be increased to a solid week, when local pride rises to such a height as to allow

it. Chairman Tapper with Charles L. Burrows made four complete rounds of the city in a machine, and directed the work of transporting the rubbish from the streets and yards to the dump. There were 40 teams, including all of the health wagons and many loaned by individuals. With 140 miles of streets Mayor Newhall was loud in his expression of approval of the board of health in inaugurating the clean-up day movement. He states that such work is along the line he advocates, the cleaning up of the city, morally, mentally and physically.

RAPID TRANSIT

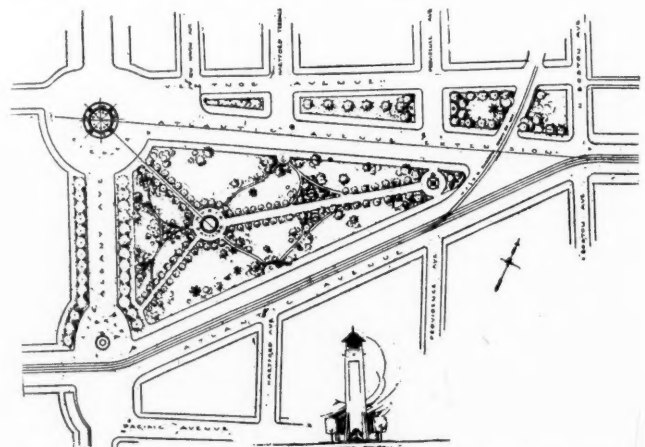
Municipally Owned Street Railway Proves a Success.

San Francisco.—San Francisco's municipally owned and operated street railway which runs on Geary street—the first railway of its kind in the United States—completed its fourth month April 28. The city's venture with the line was a success from the very start. Beginning December 28, it took in \$748 the first day for its owner—San Francisco. This was approximately \$200 over its operating expenses and the interest on the bonds for its construction. It has steadily averaged \$100 daily in net earnings since that time. The statement of the superintendent, just issued, shows that during the first three days the road took in \$3,300.60. In January it took in \$17,435.65; in February \$18,619.90. The March and April figures were not available. A recapitulation shows the total receipts up to March 1 to have been \$39,385.85, the total expenses \$21,435.11 and the total net profits \$17,950.74. Eighteen cars are being operated on the road at the present time. Twenty-five more cars will be added as soon as the line is continued down Market street to the suburban ferry building. All of these cars are to be constructed in San Francisco. Thirty-six motormen and conductors are employed at present. There is a barn force of seven and an executive force of six. It is planned to start at once on the extension of the line from the foot of Market street, the city's main business artery, to what will be the very heart of the Panama-Pacific exposition. Thus the line will be made to cut practically across the city. The cost of the running expenses of the road for a day is approximately \$450. The interest on the bonds for the road's construction brings this up to a total of \$550 per day.

MISCELLANEOUS

Cities May Own Theatres.

Des Moines, Ia.—Cities in Iowa will be authorized to build municipal theatres if a bill which passed the House of the Iowa Legislature meets with a similar reception in the Senate. The measure provides that elections may be held to determine whether such theatres shall be established, and a two-mill tax for the support of the playhouse is included. Management is to be vested in five trustees appointed by the Mayor and Council.



PLAN ADOPTED BY ATLANTIC CITY COMMISSION FOR CHELSEA PARK.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Street—Boundaries—Description.

Johnston v. Town of Palmetta.—When a street is referred to in a grant for other conveyance, the way as opened and actually used, rather than as formerly existing, is to be construed to be the boundary intended by the parties.—Supreme Court of Georgia, 77 S. E. R., 807.

Removal of Sand from Filter Bed—Pollution.

Mann v. Des Moines Water Co.—That complainant water company granted a license to defendant to remove sand from the bed of a river which constituted a filter bed for the city's water supply did not estop the company from thereafter suing to restrain the further removal of the sand on its being discovered that the removal operated injuriously to the filtration and polluted the water.—United States Circuit Court of Appeals, 202 F. R., 863.

Actions for Causing Death—Sufficiency of Evidence.

Runkle v. City of Pittsburgh.—In an action for the death of plaintiff's husband, alleged to have been caused by the failure of defendant city to barricade an approach to an abandoned bridge, where the only evidence as to the accident was that the decedent was found dead at the foot of the abutment, the case should be withdrawn from the jury.—Supreme Court of Pennsylvania, 86 A. R., 199.

Bond Issuance—Elections.

D'Espard v. Borough of Essex Fels.—Since the Borough Act authorized the issuance of bonds by a borough, was intended to enable the council to submit the question to voters at an annual or at a special election, the laws governing the procedure at an annual election applied to the submission of the question where it was submitted at such election.—Supreme Court of New Jersey, 86 A. R., 172.

Assessments—Property Liable—"Adjacent."

City of Superior v. Lake Superior T. T. Ry. Co.—Under a statute authorizing assessments of benefits from local improvements against abutting or adjacent real estate, "adjacent" means lying near to, but not actually touching, the improvement, being separated therefrom by an intervening parcel or strip.—Supreme Court of Wisconsin, 140 V. W. R., 26.

Sunday Closing Ordinance.

City of Springfield v. Richter.—A Sunday closing ordinance, applicable to some lines of business and exempting others, is not invalid as a denial of equal rights and privileges.—Supreme Court of Illinois, 101 N. E. R., 192.

City of Clinton v. Wilson.—An ordinance subjecting to fine every person who shall on Sunday keep open his place of business or pursue his daily labor, provided the prohibition shall not apply to persons observing some other day of the week as the Sabbath, or to cases of necessity or charity, or to hotels, eating houses, drug stores, tobacco stores, barber shops, or livery stables, is not invalid as special legislation, since a substantial difference exists in the classes of employment and business within the prohibition and those excepted therefrom.—Supreme Court of Illinois, 101 N. E. R., 192.

Paving Contract—Guarantee—Repairs.

Cameron-Hawn Realty Co. v. City of Albany.—Where plaintiff executed a paving contract with a city stipulating that the city might retain 5 per cent. to insure performance of plaintiff's agreement to keep the pavement in repair for ten years, and plaintiff refused to make repairs which became necessary within two years, whereupon the city expended the amount retained in making the repairs itself, defendant could not recover the amount so retained, because the pavement had been laid in strict accordance with

the contract and the city's specifications, and that the defects which necessitated the repairs were caused by the defective plan which the city adopted for the work.—Court of Appeals of New York, 101 N. E. R., 162.

Park Commissioners—Authority—Street Railway.

Chicago City Ry. Co. v. South Park Com'rs.—Under Act Feb. 24, 1869, and Laws 1879, making a board of park commissioners a corporation politic, with power to select land and hold and manage it as a public park, and giving it the same authority thereover as that possessed by the common council of the city, with power to connect parts of intersecting streets with the parkway system, with the same control thereover as over parks and boulevards, the park commissioners, while without right to prohibit the construction of a street railway across the part of an intersecting street previously connected with the parkway system, had the right to require that the work should be done subject to such reasonable conditions and limitations as would cause the least interference with their use as driveways and boulevards.—Supreme Court of Illinois, 101 N. E. R., 201.

Diversion of Stream—Injunction.

Chase-Hibbard Milling Co. v. City of Elmira.—A city will not be enjoined from diverting the waters of a stream in the accomplishment of a public purpose within the powers conferred upon it, where there is no lack of reasonable care and skill, though as an incidental consequence of its acts the water power available to a mill owner for mill purposes is decreased; the case being one of *damnum absque injuria*.—Court of Appeals of New York, 101 N. E. R., 158.

Engineers Preliminary Estimates—Sufficiency.

City of Chicago v. Underwood.—It is no part of the estimating engineer's duty to determine the character of material that will be necessary for an improvement, his business being merely to estimate the cost of the improvement described in the resolution, the only requirement being that it shall be itemized to the satisfaction of the board of local improvements; and an estimate "constructing six new catch-basins, complete, at \$50, \$300," was not open to objection in a proceeding to confirm an assessment, under Local Improvement Act prescribing the proceedings in making improvements.—Supreme Court of Illinois, 101 N. E. R., 261.

Defective Street—Unregistered Automobile.

Holland v. City of Boston.—One running an unregistered automobile upon a city street and against a rope stretched across the street, is a mere trespasser, who has no other right than to be exempt from reckless, wanton, or willful injury.—Supreme Judicial Court of Massachusetts, 100 N. E. R. 1009.

Contracts for Road Machinery.—Powers of Town Superintendent.

Gardner et al. v. Town of Cameron et al.—A Contract between a steam roller company and a town, by which the company agreed to lease a roller to the town at the rate of \$10 a day, the town agreeing to use it not less than 64 days in a year, and providing that it should automatically continue in force for the 4 succeeding years, unless terminated by notice given by the town superintendent on or before February 1 of each year, that, if so continued, it would be used in each year at least 64 days at the same rate, and that, on payment of the rental for the full 5 years, the company would sell the roller to the town for the consideration of \$1 and the rental payments, was not authorized by Highway Law, § 50, authorizing town superintendents to hire stone crushers and steam rollers, at not to exceed \$10 for each day the stone crusher or steam roller is actually used upon the highways, since it was plainly an attempt to indirectly purchase the steam roller contrary to statutory limitations upon the superintendent's power to purchase, especially as under Highway Law, the fund from which the expense of leasing or hiring the steam roller would be paid is made up in part by contributions from the state.—New York Supreme Court, 140 N. Y. S., 634.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals.

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS.

Highways, National. Illustrated, 1½ pp., Municipal Journal, May 1. 10 cts.
Road Problems of South Carolina. By M. D. Holmes. Illustrated, 1½ pp., Southern Good Roads, April. 10 cts.
Ontario's Highways of the Future. Paper before Ontario Good Roads Association. By W. A. McLean. Illustrated, 4 pp., Good Roads, Canada, April. 10 cts.
Comprehensive Plan for State Road Improvement. ½ p., Engineering Record, April 10. 10 cts.
Administration of State Road Work. State and local administrative organizations; taxing abutting property. Rural population, assessed valuation, population per mile of road, etc. 4 pp., Municipal Journal, May 1. 10 cts.
Minnesota's New Road Law. ½ p., Municipal Journal, May 1. 10 cts.
Criticism of New York's New Highway Law. 2-3 p., Engineering Record, April 26. 10 cts.
Reports on the Organization of a Highway Department for the State of New York. 1½ pp., Engineering News, April 17. 15 cts.
Organization of Town Highway Departments. Paper before American Association for the Advancement of Science. By Fred. Bush. 1 p., Engineering & Contracting, April 23. 10 cts.
Highway Laws of the United States. 10½ pp., Good Roads, April 5. 10 cts.
Change in Kentucky Road Law. ¼ p., Municipal Journal, May 1. 10 cts.
Organization of Town Highway Departments. Paper before American Association for the Advancement of Science. By Fred. Buck. Illustrated, 2 pp., Good Roads, April 5. 10 cts.
Accounting System of the Maryland State Roads Commission. 2½ pp., Engineering & Contracting, April 16. 10 cts.
Directory of State Highway Officials. 3 pp., Good Roads, April 5. 10 cts.
Federal Aid Ideas, Symposium of. Opinions of forty road officials and others concerning federal aid road construction. Class of roads to receive federal aid; amount to be given for construction and maintenance. 5 pp., Municipal Journal, May 1. 10 cts.
Data, State Highway. State aid appropriations and expenditures, payments by state, county and township; use of convict labor, road mileage, total, improved and state aid, miles of improved road per capita. 1½ pp., Municipal Journal, May 1. 10 cts.
Classification of State Aid Roads. Amount of each of several kinds constructed in 1912. 1 p., Municipal Journal, May 1. 10 cts.
Review of Road Building in the United States. 12 pp., Good Roads, April 5. 10 cts.
Construction, Road. Paper before League of California Municipalities. By C. E. Bayley. 4 pp., Pacific Municipalities, April. 25 cts.
Road Construction in Michigan. By F. F. Rogers. Illustrated, 6 pp., Municipal Engineering, April. 25 cts.
The Long Clove-Haverstraw State Highway. Construction on slope of steep talus, the only site available, unusually difficult. Illustrated, 3-2-3 pp., Municipal Journal, May 1. 10 cts.
Cinder Base Macadam in St. Louis. Illustrated, 2-3 p., Municipal Journal, May 1. 10 cts.
Asphaltic Concrete in Queens Borough. Average rate of construction of a mile a day. Method of constructing using old macadam as foundation; contractors' plants and methods; piling sand and stone during winter. Illustrated, 3 pp., Municipal Journal, May 1. 10 cts.
Better Road Surfaces. By W. W. Crosby. Illustrated, 3 pp., American City, April. 25 cts.

Light Traffic Pavements. Paper before League of California Municipalities. By W. J. Backus. 4 pp., Pacific Municipalities, April. 25 cts.
The Red and Black Roads of Saskatchewan. 2 pp., Canadian Engineer, April 17. 15 cts.
"365-Day Roads". By J. D. Farquharson. Illustrated, 4 pp., Southern Good Roads, April. 10 cts.
Culvert Formula, A Rational. By W. W. Horner. 1½ pp., Engineering News, May 1. 15 cts.
Earth Roads, Competitive Essays on. ¼ p., Municipal Journal, May 1. 10 cts.
Bituminous Materials for Road Building. By A. A. Cushman. Illustrated, 2 pp., Southern Good Roads, April. 10 cts.
Characteristics and Differentiation of Native Bitumens and their Residuals. By Clifford Richardson. 2½ pp., Engineering Record, April 26. 10 cts.
Value of Specifications and Tests of Bituminous Material. Paper before American Association for the Advancement of Science. By C. S. Reeve. 2-3 p., Engineering & Contracting, April 16. 10 cts.
Limitations in the Use of Bituminous Carpeted Surfaces. Paper before American Association for the Advancement of Science. By A. W. Dean. Illustrated, 2 pp., Good Roads, April 5. 10 cts.
Concrete Roads. Paper before Western Society of Engineers. By E. N. Hines. Illustrated, 10 pp., Journal Western Society of Engineers, March. 50 cts.
Concrete Paving. Address before League of Iowa Municipalities. By J. C. Gaynor. Illustrated, 5 pp., American Municipalities, April. 25 cts.
Tests of Concrete Pavement. ½ p., Municipal Journal, May 1. 10 cts.
Concrete Roads and Pavements in Ontario. 1½ pp., Municipal World, April. 15 cts.
Maintenance of Roads, Repair and. Paper by L. I. Hughes before Ontario Road Association. 2½ pp., Municipal World, April. 15 cts.
Queensboro Maintenance Work. Resurfacing tar and waterbound macadam. Illustrated, 1 p., Municipal Journal, May 1. 10 cts.
Philippine Road Maintenance Problems. Illustrated, 1 p., Engineering News, April 10. 15 cts. 1 p., Engineering & Contracting, April 30. 10 cts.
Photographic Story of Road Conditions from Chicago to California. By E. L. Ferguson. Illustrated, 5 pp., The Automobile, April 24. 10 cts.
Convict Labor in Highway Construction. By J. H. Pratt. 10 pp., Annals of the American Academy of Political and Social Science, March. \$1.
Outdoor Work for Convicts. County road camps in Arkansas. By Joe Asher. Outdoor Work in Michigan. By W. K. Bryant. Experimental Road Work in Ohio. By J. R. Marker. 27 pp., Annals of the American Academy of Political and Social Science, March. \$1.
Prison Labor on Public Roads. By T. W. Tynan. 2 pp., Annals of American Academy of Political and Social Science, March. \$1.
Traffic Problems, Motor. Evidence before Select Committee. 1 p., Municipal Journal, London, April 18. 10 cts.
The Wheel and the Road. By R. E. Crompton. 4 pp., Surveyor, April 18. 40 cts.
A Horseless City. ¼ p., Municipal Journal, May 1. 10 cts.
Quarries in Washington, State. Five operated by State for road purposes. Costs. Illustrated, 1½ pp., Municipal Journal, May 1. 10 cts.
Metals, Road. From report of W. A. McLean. 1½ pp., Canadian Engineer, April 10. 15 cts.
Road Testing Laboratory of University of Colorado. ¼ p., Municipal Journal, May 1. 10 cts.

Practical Interpretation of Stone Tests. By H. S. Mattimore. 1 p., Good Roads, April 5. 10 cts.
Costs, Highway. 1 p., Municipal Journal, May 1. 10 cts.
Associations and Kindred Organizations, Directory of Good Roads. 7 pp., Good Roads, April 5. 10 cts.
Street Paving in England. Report of Metropolitan paving committee. 1 p., Canadian Engineer, April 3. 15 cts.
Unusual Design for Paving a Street Intersection. By S. C. Corson. Illustrated, 2-3 p., Engineering News, April 10. 15 cts.
Original Paving Done During 1912. Some additional tabular data, and notes. 1½ pp., Municipal Journal, April 17. 10 cts.
Pavement Cuts in Hamburg. ¼ p., Municipal Journal, April 17. 10 cts.
Maintenance and Treatment of Smooth Pavements. From paper before Illinois Society of Engineers and Surveyors. By W. L. Hempelmann. 1 p., Engineering Record, April 10. 10 cts.
Brick, Abrasion Loss Requirements for. ¼ p., Municipal Journal, April 24. 10 cts.
Wood Block Pavements, Laying. Paper before American Wood Preservers' Association. By H. S. Loud. Wood Preserving World, April. 25 cts.
Asphalt Pavement Construction in 1912. Some Notes on. 2-3 p., Engineering & Contracting, April 9. 10 cts.
Rock Asphalt Pavements of Lawton, Okla. By F. D. King. Illustrated, 1½ pp., Engineering & Contracting, April 30. 10 cts.
Topeka Specifications, Binder Course. Communication from F. N. Bingham, with comments. Illustrated, 1½ pp., Municipal Journal, April 10. 10 cts.
Proposed Highway Tunnels in Pittsburgh. ½ p., Good Roads, April 5. 10 cts.
Sidewalks, Curbs and Gutters Laid During 1912. Some additional tabular data. 1 p., Municipal Journal, April 24. 10 cts.

SEWERAGE AND SANITATION.

Sewerage.—History of the Main Drainage Scheme of London, England. 1¼ pp., Canadian Engineer, April 24. 15 cts.
Artificial Island Proposed for New York Sewage Disposal. 1 p., Engineering Record, April 26. 10 cts.
Run-off into Storm Water Sewers, Rainfall and. Paper before Western Society of Engineers. By S. A. Greeley. 5½ pp., Engineering & Contracting, April 30. 10 cts.
Storm Water Discharge. By R. O. Wynne-Roberts. Illustrated, 2 pp., Surveyor, April 4. Illustrated, 2 pp., Surveyor, April 11; illustrated, 2½ pp., April 18. 40 cts.
Rates of Rainfall for Storm-Sewer Calculations. By J. A. Cushman. 2-3 p., Engineering News, April 10. 15 cts.
Infiltration into Sewers, Amount of Ground Water. From paper before American Society of Civil Engineers. By J. M. Brooks. 2 pp., Engineering & Contracting, April 16. 10 cts.
Pipe, Studies of Coefficient of Friction in Reinforced Concrete. By H. D. Newell. 2 pp., Engineering News, May 1. 15 cts.
Cement Drain Tile Reinforced for Large Sizes and Unusual Depths. By C. E. Simms. 2 pp., Iowa Engineer, April. 10 cts.
An Outfall Sewer of Corrugated Iron Pipe and Measurements of its Internal Friction. Illustrated, 1¼ pp., Engineering News, April 17. 15 cts.
Constructing Pipe Sewers in Quick-sand at West Liberty, Iowa. 1 p., Engineering & Contracting, April 16. 10 cts.
Pumps at St. Charles, Sewer. ¼ p., Municipal Journal, April 24. 10 cts.

Treatment at Norristown, Pa., State Hospital, Sewage. Screen, primary settling tanks, dosing chamber, percolating filter and secondary settling tanks; hypochlorite treatment, sludge beds, operating results. By P. E. Mebus. Illustrated, 3½ pp., Municipal Journal, April 24. 10 cts.

New Type of Sewage Sedimentation tank, Mount Washington, Md. By H. T. Oliver. Illustrated, 3 pp., Engineering News, April 10. 15 cts.

Imhoff Tank Patents. Communication from F. F. Miller. ¼ p., Municipal Journal, April 17. 10 cts.

Revolving Drum Screens for Sewage. By Kenneth Allen. 2 pp., Engineering Record, April 26. 10 cts.

Design of the Sewage Treatment Plant at Albia, Iowa. Illustrated, 1 2-3 pp., Engineering & Contracting, April 30. 10 cts.

Sewage Treatment Plant for the Julietta Insane Hospital in Indiana. By Charles Brossman. Illustrated, 1½ pp., Engineering News, May 1. 15 cts.

Laws and Regulations Pertaining to Public Health, State. 5 pp., Public Health Reports, March 28; 6 pp., April 4; 8 pp., April 11; 10 pp., April 18.

Municipal Ordinances, Rules and Regulations Pertaining to Public Health. 7 pp., Public Health Reports, March 28; 7 pp., April 4; 5 pp., April 11; 10 pp., April 18.

Water Board Violates Health Laws. ¼ p., Municipal Journal, April 10. 10 cts.

Swimming Pools, Sanitation of. By A. A. Moll. Illustrated, 6 pp., American City, April. 25 cts.

Flooded City of Dayton, Emergency Sanitation Work in the. By C. F. Long. 1 p., Engineering Record, April 19. 10 cts.

WATER SUPPLY.

Water Supply and Sewerage Problems. By W. M. Edwards. Illustrated, 3½ pp., Contract Record, April 23. 15 cts.

Water System for Upper Willamette Valley, Oregon. By L. C. Kelsey. Illustrated, 4 pp., Municipal Engineering, April. 25 cts.

Lake Water Supplies, Methods of Protecting. From paper before International Congress of Applied Chemistry. By G. C. Whipple. Illustrated, 5 pp., American City, April. 25 cts.

Wells in Illinois, Shallow. Relation between depth and nature of water; generally safe below fifty feet. Illustrated, 1½ pp., Municipal Journal, April 10. 10 cts.

Cleaning Old and Sinking New Driven Wells. By H. E. Heller. ½ p., Engineering & Contracting, April 23. 10 cts.

Experience of the State of Illinois with Shallow Wells. Paper before Indiana Water Supply Association. By Edward Bartow. Illustrated, 1 p., Fire & Water, April 9. 10 cts.

Aqueduct, Completion of the Los Angeles. By B. A. Heiny. Illustrated, 10 pp., Municipal Engineering, April. 25 cts.

The 48-inch Continuous Wood Stave Main, Absecon Station to Atlantic City, N. J. Paper before American Society of Engineering Contractors. By G. L. Watson. 3 pp., Contractor, April 1; 2½ pp., April 15. 20 cts.

Dam and Embankment Failures of 1912. By M. L. Fuller. 2 pp., Engineering Record, April 19. 10 cts.

Dams that Burst in Ohio. ½ p., Fire & Water, April 16. 10 cts.

The Portman Dam. Its Construction and Failure. Paper before Engineering Association of the South. By W. F. Lee. Illustrated, 5 pp., Proceedings Engineering Association of South, March. 50 cts.

Intake for the Capilano Water Works, Vancouver, B. C., New. By W. M. Burwell. Illustrated, 1½ pp., Engineering News, April 10. 15 cts.

Typhoid Epidemic Caused by Uncalked Joints in an Intake Pipe. From paper before Illinois Water Supply Association. By W. W. Cobleigh. ½ p., Engineering News, April 10. 15 cts.

Reservoir at Fort Dodge, Ia., New Storage. Illustrated, 1 2-3 pp., Fire & Water, April 16. 10 cts.

Algae and the Water Works Reservoir at Quincy, Ill. From paper before Illinois Water Supply Association. By W. R. Gelston. 2-3 p., Engineering News, April 24. 15 cts.

Western (Asphaltic) Oil not Effective Waterproofing Agents for Concrete. ¾ p., Engineering News, May 1. 15 cts.

Ohio Reservoirs during the March Floods. By Morris Knowles. Illustrated, 2½ pp., Engineering Record, April 19. 10 cts.

Standpipe Failure at Cairo, Ill., Recent. By G. C. Habermeyer. Illustrated,

4 pp., Engineering News, April 24. 15 cts.

Pumping Plants, Economies of Water Works. Paper before Indiana Sanitary and Water Supply Association. By C. H. Benjamin. 1 p., Engineering & Contracting, April 23. 10 cts.

Reciprocating Pump Curves. By A. M. Daniel. Illustrated, 2 pp., Power, April 8. 5 cts.

The 40,000,000-Gallon Direct-Acting Explosion Pumps at Chingford, England. Illustrated, 2 pp., Engineering News, April 17. 15 cts.

Methods of Increasing Pumping Plant Efficiency. From paper before Illinois Water Supply Association. By S. G. Pollard. 1 p., Engineering Record, April 10. 10 cts. Illustrated, 1½ pp., Fire & Water, April 16. 10 cts.

Meter Accounting at Ottawa, Kan., Water. By O. W. Miles. Illustrated, 1½ pp., Engineering & Contracting, April 23. 10 cts.

Theft of Water Through Fire Services. ¾ p., Municipal Journal, April 17. 10 cts.

Reconstructed Water Works Plant at Miles City, Mont. By G. C. Pruett, City Engineer. Illustrated, 3½ pp., Engineering & Contracting, April 23. 10 cts.

Purification Plants in Illinois, Conditions of Small Water. Paper before Illinois Water Supply Association. By Ralph Hilscher. ½ p., Engineering Record, April 26. 10 cts. 1 p., Engineering News, April 10. 15 cts.

Abuses of Water Filtration. From paper before New England Water Works Association. By G. H. Pratt. 1 p., Engineering & Contracting, April 23. 10 cts.

Increasing Yield of Pittsburgh's Slow Sand Filtration Plant. Preliminary treatment of Allegheny river water by contact baffles of coarse stone and a frame baffles across sedimentation basin. Illustrated, 2 1-3 pp., Engineering Record, April 19. 10 cts.

Flooding of the Albany Filtration Plant and Previous High Floods at Albany, N. Y. By W. Greenalch. Illustrated, 1½ pp., Engineering News, April 10. 15 cts.

Pittsburgh Slow Sand Filters. Reduction in operating costs largely due to improved method of handling sand. Treatment preliminary to filtering. Illustrated, 1 p., Municipal Journal, April 17. 10 cts.

New Sedimentation Basin in Georgetown Reservoir, District of Columbia Water Supply. Illustrated, 1½ pp., Engineering News, April 17. 15 cts.

Sterilization of Water by Ultra-Violet Light. From paper before Illinois Water Supply Association. By J. R. Davies. ½ p., Engineering Record, April 19. 10 cts.

Chlorine Gas for Water Sterilization at Wilmington. By J. A. Kienle. Illustrated, 1 p., Engineering Record, April 10. 10 cts.

Carbon Dechlorination of Chlorinated Water Supplies in England. By A. C. Jarvis. 1½ pp., Engineering News, April 17. 15 cts.

Typhoid Fever in New York State. Water Supplies and. 1 p., Municipal Journal, April 10. 10 cts.

Appraisal of Water Works Properties with Special Reference to the Reproduction Method. 1½ pp., Engineering & Contracting, April 9. 10 cts.

Litigation, Water Works. ½ p., Fire & Water, April 9. 10 cts.

Stream Flow, Methods of Estimating. When Streams are Frozen. By W. B. Hoyt. Illustrated, 2 pp., Engineering News, April 10. 15 cts.

Investigations to Determine the Influence of Forest Cover on the Flow of Streams of the White Mountains. Illustrated, 2 2-3 pp., Engineering & Contracting, April 9. 10 cts.

Problem of Flood Control. From paper before National Drainage Congress. By Col. C. McD. Thompson. 3½ pp., Engineering News, April 17. 15 cts.

Sacramento River Flood Control. By F. H. Tibbetts. Illustrated, 9 pp., Engineering & Contracting, April 9. 10 cts.

Estimating Amount of Evaporation from Water and Soil Surfaces in Livermore County, California. 6 pp., Engineering & Contracting, April 30. 10 cts.

River Regulation; Need for Scientific; the Opportunity of the Engineering Profession. 2 pp., Engineering News, April 10. 15 cts.

Reservoir at the Headquarters of the Mississippi River. ½ p., Engineering Record, April 19. 10 cts.

Pittot Tube, Notes on the. By John Airey. Illustrated, 2 pp., Engineering News, April 17. 15 cts.

STREET LIGHTING AND POWER PLANTS.

Street Lighting. By K. G. Rennie, 2 pp., American Gas Light Journal, April 7. 10 cts.

A Study of Street Lighting. From paper before British Institution of Electrical Engineers. By Messrs. Pearce & Ratcliff. 1 p., Electrical World, April 19. 10 cts.

Comprehensive Plans for Future Street Lighting of Chicago. Illustrated, 1 p., Electrical World, April 12. 10 cts.

Lamps on Dearborn Street, Chicago. New. Illustrated, 1 p., Electrical World, April 19. 10 cts.

Flame-Arc Lighting of Dearborn Street, Chicago. Trolley Poles for White Way Effect. Illustrated, 2½ pp., Electrical Review, April 12. 10 cts.

Illumination, Measurement of. By S. L. E. Rose and H. E. Mahan. Illustrated, 6 pp., General Electrical Review, May. 20 cts.

Low Pressure Lighting, Progress of High and. By Hans Graetz. 3 pp., Gas Age, May 1. 20 cts.

Gas, Determination of Sulphur in Illuminating. Advance copy Bulletin U. S. Bureau of Standards. By R. S. McBride and E. R. Weaver. Illustrated, 4½ pp., Gas Age, May 1. 20 cts.

Electrolysis from Stray Electric Currents. Paper before New England Association of Gas Engineers. By A. F. Ganz. Illustrated, 3½ pp., Canadian Engineer, April 3; illustrated, 3½ pp., April 10; illustrated, 4 pp., April 17; 4 pp., April 24. 15 cts.

Iron Pipe Used for Electric Conduits. 1 2-3 pp., Electrical Review, April 26. 20 cts.

Rate Making, Features of Electric. By G. L. Hoxie. 1½ pp., Public Service, April. 20 cts.

Cheaper Gas. ¼ p., Municipal Journal, April 10. 10 cts.

Plant Operated by Oil Engine, Municipal Lighting. By L. F. Phelps. Illustrated, 2 pp., Municipal Engineering, April. 25 cts.

Fuels, Economic Combustion of Low Grade or Waste. By D. M. Myers. Illustrated, 14 pp., Engineering Magazine, May. 25 cts.

A New Smoke Chart. Illustrated, 1½ pp., Engineering Digest, April. 20 cts.

Steam Consumption, Determination of. By E. B. Smith. Illustrated, 1½ pp., Power, April 1. 5 cts.

Water-Power and Other Hydraulic Works, Stream Gaging Stations as Component Parts of. By J. C. Hoyt. Illustrated, 1 p., Engineering News, April 24. 15 cts.

Columbia River Power Project. By L. F. Harza. Paper before Oregon Society of Engineers. Illustrated, 14 pp., Journal of the Association of Engineering Societies, April. 30 cts.

Damage by Floods to Electrical Properties. Illustrated, 10½ pp., Electrical World, April 5. 10 cts.

FIRE AND POLICE.

Fire Department, Springfield. Report of National Board of Fire Underwriters. 1½ pp., Fireman's Herald, April 26. 5 cts.

Marshal Law, New Jersey Fire. Full text of proposed measure. 1 p., Fire & Water, April 16. 10 cts.

High Pressure Fire System, The Baltimore. From paper before American Society of Mechanical Engineers. By J. B. Scott. 7 pp., Engineering & Contracting, April 16. 10 cts.

Hydrants, Preventing, from Freezing. ½ p., Municipal Journal, April 17. 10 cts.

Apparatus, Motor Fire, Situation Analyzed. By A. L. Clough. 1 p., Fire & Water, April 23. 10 cts.

Foam Fire Extinguishers. Illustrated, 2½ pp., Engineering Magazine, May. 25 cts.

Tower for Firemen, Training. ¼ p., Municipal Journal, April 24. 10 cts.

Streams from Small Hose and Nozzle, Fire. Paper before Illinois Water Supply Association. By V. R. Fleming. Illustrated, 2 pp., Fire & Water, April 30. 10 cts. 2 pp., Engineering & Contracting, April 9. 10 cts.

Fire Alarm, Recent Developments in Operating Equipment in the St. Louis. By G. McD. Johns. 1½ pp., Electrical Review, April 5. 10 cts.

Letter Boxes to be Painted Red. Fire engineers and underwriters believe the recent post office order will result in delayed fire alarms. 2 pp., Insurance Engineer, March. 25 cts.

Schools and Colleges Built to Burn. 15 pp., Insurance Engineering, March. 25 cts.

New Schoolhouse Construction. Character of new buildings reveals general disregard of economy of fireproof materials. Illustrated, 6 pp., Insurance Engineering, March, 25 cts.
 School Fire Drills. Illustrated, 1½ pp., Insurance Engineering, March, 25 cts.
 Fireproofing Schools with Water. Illustrated, 4 pp., Insurance Engineering, March, 25 cts.
 Designing New School Houses with a View to Safety Against Fire. By H. M. Hathaway. Illustrated, 6 pp., Insurance Engineering, March, 25 cts.
 Exits in Old School Buildings. By H. M. Hathaway. Illustrated, 2 pp., Insurance Engineering, March, 25 cts.
 Police Progress in Philadelphia During the Year 1912. Addresses before City Club. By G. D. Porter, M. H. Wray and James Robinson. 11 pp., City Club Bulletin, April 23.

REFUSE DISPOSAL.

Street Cleaning at Spokane Wash., in 1912. Cost of. 1 p., Engineering & Contracting, April 30, 10 cts.
 Collection and Disposal of Municipal Waste. Paper before Civil Engineers Society of St. Paul. By G. H. Herrold. 10 pp., Journal of the Association of Engineering Societies, April, 30 cts.
 Sanitary Method of Garbage Collection. By W. H. McLain. Illustrated, 2 pp., American City, April, 25 cts.
 Disposal Plant in Milwaukee, Wis., Refuse. By F. C. Perkins. Illustrated, 2 pp., Chemical Engineer, April, 25 cts.
 Pasadena's Refuse Incinerator. Located where absence of odors is imperative. Unique method of receiving garbage and charging furnace. Steam to be furnished to municipal lighting plant. By C. L. Edholm. Illustrated, 3¼ pp., Municipal Journal, April 17, 10 cts.
 Operating a Waste Paper Baling Press in Connection with Collection of Municipal Refuse in Evanston, Ill. By H. H. Sherer. Illustrated, 1 p., Engineering and Contracting, April 30, 10 cts.
 Utilizing a City's Wastes for Filled Land. From Report by C. W. Stainford, Chief Engineer, Dock Department, New York City. 1 p., Engineering Record, April 10, 10 cts.

GOVERNMENT AND FINANCE.

City Government in America. Address before the Association of Midland Local Authorities. By Alderman W. F. Cook. Municipal Journal, London, March 28, 2 pp., 10 cts.
 Efficient City Government. Address before Philadelphia City Club. By Henry Bruere. 1 p., Citizen's Bulletin, April 5, 5 cts.
 Commission Plan of City Government. By J. W. Mayer. 3½ pp., American Municipalities, April, 25 cts.
 Should Canadian Cities Adopt Commission Government? By W. B. Monroe. 2 pp., Municipal World, April, 15 cts.
 Commission Government in Lawton. ½ p., Municipal Journal, April 24, 10 cts.
 Public Safety and Commission Government. By J. J. Ryder. 4 pp., American Municipalities, April, 25 cts.
 Manager Plan of Government for Hickory, N. C. ¼ p., Municipal Journal, April 17, 10 cts.
 Representative Council Plan of City Government. By C. G. Hoag. 8 pp., American City, April, 25 cts.
 Home Rule for New York Cities. Municipal. ½ p., Municipal Journal, April 17, 10 cts.
 Municipal Ownership of Public Utilities in Germany. By E. M. Bassett. 3 pp., American City, April, 25 cts.
 Failure and Success of Municipal Ownership. 5 pp., Municipal Engineering, April, 25 cts.
 Public Utilities Valuation. By G. W. Hand. 13 pp., Iowa Engineer, April, 10 cts.
 Physical Valuation of Public Utilities. By R. S. Hale. 5 pp., Engineering Magazine, May, 25 cts.
 Valuation of Public Service Property. By L. R. Nash. 2 pp., Public Service, April, 20 cts.
 Regulation of Public Utilities in Wisconsin. Paper before Western Society of Engineers. By H. Erickson. 4 pp., Public Service, April, 20 cts.
 Municipalities Must Keep Franchise Contracts. 1 p., Public Service, April, 20 cts.
 Features of New Indiana Public Utilities Law. 1½ pp., Public Service, April, 20 cts.
 Creating Friendship for Utility Companies by the Use of Educational Publicity. Paper before Illinois Gas Association. By H. J. Gonden. 4 pp., Public Service, April, 20 cts.

Experiences of a Public Utility Commissioner. By J. B. Olmsted. 1 pp., Public Service, April, 20 cts.
 Franchise, Springfield's Street Railway. By G. L. Rinkliff. ¾ p., Municipal Journal, April 24, 10 cts.
 Efficiency Survey of a Municipal Department. ¾ p., Municipal Journal, April 10, 10 cts.
 Research, Bureau of Municipal Legislative. Paper before League of Washington Municipalities. By H. G. A. Brauer. 2 pp., Pacific Builder & Engineer, April 26, 15 cts.
 Bond Election. Meaning of the Los Angeles. 2 pp., Engineering News, May 1, 15 cts.
 Appraisal of Land Value. By E. W. Doty. 6 pp., Real Estate Magazine, April, 25 cts.
 Appraisals of Municipal and Public School Property. By W. W. Pollock. 1 p., American City, April, 25 cts.
 Costs in Columbia, S. C. Unit. ½ p., Municipal Journal, April 24, 10 cts.

STRUCTURES AND MATERIALS.

Concrete Work, Peril from. 1¼ pp., Stone, April, 15 cts.
 Inspection of Surface Finishes for Concrete Work. By Jerome Cochran. 4 pp., Cement and Engineering News, April, 10 cts.
 Comparative Tests of Slag and Stone Concrete. Illustrated, 3 pp., Cornell Civil Engineer, April, 25 cts.
 Tests to Determine the Effect of Stone Dust in Concrete Aggregate. By Francis Dawson. Illustrated, 9 pp., Cornell Civil Engineer, April, 25 cts.
 Lining a Small Tunnel with Concrete, Using a Pneumatic Concrete Machine. Illustrated, 1 p., Engineering & Contracting, April 23, 10 cts.
 Wood, Preservation Treatment of, with Water Gas Tar. Paper before Indiana Gas Association. By F. C. Mathers. 1 p., Gas Age, April 15, 20 cts.
 Rubber Analysis, Report on the Actual State of. By Prof. W. F. Hinrichsen. Paper before International Association for Testing Materials. 1½ pp., Chemical Engineer, April, 25 cts.
 Present Condition of the Mechanical Testing of India Rubber. By Prof. Kemmler. Paper before International Association for Testing Materials. 3 pp., Chemical Engineer, April, 25 cts.
 Bridges, Short Span. Illustrated, ½ p., Municipal Journal, May 1, 10 cts.
 Pole-Truss Highway Bridges on Mountain Roads in Washington. By C. R. Ege. Illustrated, 1½ pp., Engineering News, April 24, 15 cts.
 Proposed Highway Bridge and Highway Tunnel across the Hudson at New York. Illustrated, 2½ pp., Engineering News, April 24, 15 cts.
 Some Features of Highway Bridge Practice without Engineering Supervision. Illustrated, 1½ pp., Engineering & Contracting, April 30, 10 cts.
 Tower Street Arch Bridge at Fergus. By A. W. Connor. Illustrated, 3 pp., Canadian Engineer, April 24, 15 cts.
 Vertical Lift-Span Highway Bridge in Tacoma. Illustrated, ¾ p., Engineering Record, April 19, 10 cts.
 Viaduct Across the Lehigh River at Allentown, Pa. Illustrated, 4 pp., Engineering News, April 17, 15 cts.
 Concrete Viaduct at Allentown, Pa. By B. H. Davis. Illustrated, 8 pp., Concrete-Cement Age, April, 25 cts.

MISCELLANEOUS.

Flood Damage at Cleveland. By Robert Hoffman. Illustrated, ¾ p., Engineering Record, April 19, 10 cts.
 Effects of Recent Flood on New York Streams. By R. E. Horton. Illustrated, 3 pp., Engineering Record, April 10, 10 cts.
 Cuyahoga River, in the flood of March 25-26, 1913. By E. B. Thomas. Illustrated, 2½ pp., Engineering News, May 1, 15 cts.
 Pittsburgh Flood of March 27. By Morris Knowles. Illustrated, 2 pp., Engineering Record, April 19, 10 cts.
 Results of Recent Flood at Columbus. By J. J. Morgan. Illustrated, 2 pp., Engineering Record, April 19, 10 cts.
 Bird's-Eye View of Conditions in the Ohio Flood Districts. Illustrated, 5 pp., Engineering News, April 17, 15 cts.
 The Flood at Indianapolis. By D. V. Moore. Illustrated, 3 pp., Engineering News, April 17, 15 cts.
 Dayton After the Flood. Illustrated, 2 pp., Engineering News, April 24, 15 cts.
 The Flood of March-April, 1913, on the Ohio River and its Tributaries. By J. C. Hoyt. Illustrated, 3 pp., Engineering News, April 10, 15 cts.
 Reports from the Flooded Districts at Indianapolis, Rochester, Terre Haute,

Sidney, Albany, Dayton, Columbus and Akron. 10 pp., Engineering News, April 10, 15 cts.
 Flood Devastation at Dayton, Ohio. Illustrated, 3 pp., Engineering Record, April 10, 10 cts.
 Notes of Damages by Flood in the Miami Valley. Illustrated, 7½ pp., Engineering News, May 1, 15 cts.
 Tornado, Effect of the Omaha, on Structures. By A. C. Arend. 2½ pp., Engineering News, May 1, 15 cts.
 Markets, Wholesale Terminal. By C. C. Miller. Illustrated, 8 pp., American City, April, 25 cts.
 Proposed Saginaw Public Market. Illustrated, ½ p., Municipal Journal, April 24, 10 cts.
 Proposed Market for Erie, Pa., Illustrated, ½ p., Municipal Journal, April 24, 10 cts.
 Stable, Louisville's Municipal, Accommodates ninety-six horses; hay and feed loft with fireproof floor. Cost of construction and of running. By G. D. Crain. Illustrated, 2 pp., Municipal Journal, April 10, 10 cts.
 Dwellings, Provision and Arrangement of Working-Class. Local Government Board Memorandum. 3½ pp., Surveyor, April 4, 40 cts.
 Libraries, Municipal. ½ p., Municipal Journal, April 10, 10 cts.
 Recreation, How to Aid the Cause of Public. By H. S. Braucher. Illustrated, 5 pp., American City, April, 25 cts.
 Ideal Playgrounds. By A. W. Dunning. Illustrated, 5 pp., Municipal Engineering, April, 25 cts.
 Garden Contests, How to Judge. By J. H. Post. 1 p., American City, April, 25 cts.
 Shade Tree Planting. Paper before League of Washington Municipalities. By J. W. Hoover. 2 pp., Pacific Builder & Engineer, April 26, 15 cts.
 Insect Pests Most Dangerous to Municipal Shade Trees. By E. M. Swiggett. 2 pp., American City, April, 25 cts.
 Park Area, Cost of Covering a, with Black Soil. ½ p., Engineering & Contracting, April 23, 10 cts.
 Flower Market, Baltimore. By Harlean James. Illustrated, 2 pp., American City, April, 25 cts.
 Club, Practical Problem of a Village Commercial. By F. M. Hansen. Illustrated, 2 pp., American City, April, 25 cts.
 Street Names and Numbers. Communication from Ernest McCullough. ½ p., Municipal Journal, April 10, 10 cts.
 Underground Survey for Spokane. ½ p., Municipal Journal, April 24, 10 cts.
 Engineer, Professional Relations of the. Discussion before the American Institute of Consulting Engineers. 2½ pp., Engineering Record, April 10, 10 cts.
 The Licensing of Engineers. Discussion before American Institute of Consulting Engineers. 2 pp., Engineering Record, April 26, 10 cts. 1 p., Engineering News, April 24, 15 cts.
 Contractors, Licenses for Builders and. 1 p., Bulletin, General Contractors Association, April, 10 cts.
 A Plan to Limit Unbalanced Bidding on City Contract Work. 1½ pp., Engineering News, April 17, 15 cts.
 Purchasing Plant and Machinery. By D. J. Hauer. 1½ pp., Contractor, April 15, 20 cts.
 Filing System for Contractors. By D. J. Hauer. 2 pp., Contractor, April 1, 20 cts.
 Earth Pressures, Lateral. By R. J. Mann. Illustrated, 12 pp., Cornell Civil Engineer, April, 25 cts.
 Laying Out of a Suburban Quarter Section. Prize design. Illustrated, 7 pp., Real Estate Magazine, April, 25 cts.
 Fieldwork and Computations for Laying out Sub-divisions on Curved Street Lines. By J. H. Anderson. Illustrated, 3½ pp., Engineering News, April 24, 15 cts.
 Tidal Phenomena in the Harbor of New York. By H. de B. Parsons. Illustrated, 116 pp., Proceedings American Society of Civil Engineers, April, \$1.00.
 Dredge Fill of Lincoln Park, Chicago, Cost of Hydraulic. Illustrated, ½ p., Engineering & Contracting, April 9, 10 cts.
 Explosives. By J. K. Moore, Road Superintendent. 2½ pp., Canadian Engineer, April 3, 15 cts.
 Day Labor in Minneapolis, Construction by. By W. N. Jones. Illustrated, 2½ pp., Engineering Record, April 19, 10 cts.
 Track on an Electric Railway, Double-Gage. Illustrated, 2 pp., Engineering News, May 1, 15 cts.
 Rolling Resistance. Some Considerations Concerning. By L. H. Houndsfield. 1½ pp., Surveyor, April 18, 40 cts.

NEWS OF THE SOCIETIES

Calendar of Meetings.

May 6-10.
PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA.—Annual Meeting. Richmond, Va.—H. S. Braucher, Secretary, 1 Madison Ave., New York City.

May 12-14.
SOUTHWESTERN WATER WORKS ASSOCIATION.—Second Annual Convention, Fort Worth, Tex. E. L. Fulkerson, Secretary.

May 13-15.
TEXAS STATE FIREMEN'S ASSOCIATION.—Annual Convention, Wichita Falls.

May 20-23.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Spring Meeting, Baltimore, Md. C. W. Rice, Secretary, 29 West 39th street, New York City.

May 22-24.
OHIO SOCIETY OF MECHANICAL ELECTRICAL AND STEAM ENGINEERS.—Annual Meeting, Springfield, O. F. E. Sanborn, Secretary, Columbus, O.

June 2-6.
NATIONAL ELECTRIC LIGHT ASSOCIATION.—Annual Convention, Chicago, Ill. T. C. Martin, Secretary, 29 West 39th street, New York City.

June 5-7.
CONFERENCE OF MAYORS OF NEW YORK STATE.—Meeting, Binghamton, N. Y. William P. Capes, Secretary, 105 East 22d Street, New York City.

June 9-13.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE.—Twentieth Annual Convention, Raleigh Hotel, Washington, D. C. Major Richard Sylvester, Superintendent of Police, Washington, D. C., President.

June 11-13.
MARYLAND STATE VOLUNTEER FIREMEN'S ASSOCIATION.—Twenty-first Annual Convention, Westport.

June 23-28.
INTERNATIONAL ROADS CONGRESS.—Third Congress, London, England. W. Rees, Jeffreys Secretary, Queen Anne's Chambers, Broadway, Westminster, London, S. W.

June 23-27.
AMERICAN WATER WORKS ASSOCIATION. Thirty-third Annual Meeting, Minneapolis, Minn. John M. Diven, Secretary, 47 State street, Troy, N. Y.

June 24-26.
UNION OF TEXAS CHIEFS OF POLICE AND CITY MARSHALLS.—Annual Convention Galveston, Tex.—Hollis Baum, Chief of Police, Waco, President.

June 24-28.
AMERICAN SOCIETY FOR TESTING MATERIALS.—Annual Convention, Atlantic City, N. J. Edgar Marburg, Secretary, University of Pennsylvania, Philadelphia, Pa.

July 8-10.
INDIANA LEAGUE OF MUNICIPALITIES.—Annual Convention, Gary. A. P. Melton, Secretary, Gary.

July 22-25.
LEAGUE OF WISCONSIN MUNICIPALITIES.—Annual Convention, Neenah, Wis.

August 19-22.
INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS.—Eighteenth Annual Convention, Watertown, N. Y.

August 25-30.
FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, Buffalo, N. Y. Dr. Thomas A. Storry, Secretary General, College of the City of New York.

September 9-13.
AMERICAN PUBLIC HEALTH ASSOCIATION.—Annual Convention, Colorado Springs, Col.—S. M. Gunn, secretary, 753 Boylston street, Boston, Mass.

August 26-28.
CENTRAL STATES WATER WORKS ASSOCIATION.—Seventeenth Annual Meeting, Cedar Point, O.—R. P. Bricker, Secretary, Shelby, O.

September 1-6.
INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. Forty-first Annual Convention, Grand Central Palace, New York City. James McFall, Secretary, Roanoke, Va.

October 7-10.
AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Twentieth Annual Meeting, Wilmington, Del.—A. Prescott Folwell, Secretary, 50 Union Square, New York City.

Tri-State Water and Light Association.

At the annual meeting, Charlotte, N. C., April 15-16, the following officers were elected: President, A. J. Sproles, Greenwood, S. C.; first vice-president, F. C. Wise, Columbia, S. C.; second vice-president, G. W. Hubbard, Madison, Ga.; third vice-president, J. W. Neave, Salisbury, N. C.; secretary and treasurer, M. A. Stubbs, Dillon, S. C. W. F. Steiglitz, of Columbia, S. C., Peter Peterson and J. L. Hudson, of Atlanta, were elected members of the Finance Committee.

International Association of Chiefs of Police.

Interest in the enforcement of the so-called "white slave" law will be shown in the meeting to assemble in annual session in Washington, D. C., June 9. The sessions will continue throughout the week. They will be held at the Raleigh Hotel, where the visitors will make their headquarters.

Maj. Richard Sylvester, superintendent of police, has been president of the organization for twelve years. A. Bruce Bielaski, chief of the bureau of investigations, Department of Justice, and Stanley Finch, in charge of "white slave" prosecutions, are expected to furnish interesting information about such matters.

Prior to the meeting of the association the board of governors of the bureau of identification will hold its annual meeting. Chief Frank J. Cassada of Elmira, N. Y., is chairman of the board, and its members include police officials from all sections of the United States.

Iowa Electrical Association.

At the convention held at Waterloo during the week ending April 26, the following officers were elected: President, A. L. Dodd, Charles City; vice-president, Rufus E. Lee, Clarinda; secretary, H. B. Maynard, Waterloo; treasurer, W. A. Mall, Belle Plaine. Executive committee: Thomas Crawford of Clinton, A. D. Ayers of Keokuk, F. C. Ross of Carroll.

Fourth International Congress on School Hygiene.

In view of the serious importance of school hygiene to the child, the school, the home and the community, the Organizing Committee of the Fourth International Congress on School Hygiene, to be held at Buffalo, Aug. 25-30, is inviting the attendance, not only of educators, physicians, hygienists and scientists, but also of delegates from all the leading towns and cities, and from the states and territories of this country.

No effective campaign for the extension of modern methods in school hygiene can be carried on without a community backing, announces the organizing committee, and one of the prime objects of the forthcoming Con-

gress is to secure this endorsement. Letters have been sent to several hundred mayors, and to the governors of all the states and territories, requesting the appointment of delegates.

The successful co-operation of all these influences, according to the Buffalo program, will mean the establishing of efficient medical, hygienic, and sanitary supervision in schools, giving in return:

For the child: Increased comfort, greater happiness, larger school room success, more safety and greater certainty of future efficiency.

For the school: Fewer absences from the school room, fewer interruptions on account of epidemics, and more satisfactory educational response to class room activities.

For the home: Less anxiety, less apprehension, fewer doctor bills, less work, more health, happiness and prosperity.

For the tax payer: a saving by more efficient methods in school work, and also a larger product of active, intelligent, capable individuals, whose influence will be toward the improvement of every phase of community life.

For the community: Healthier and, therefore, more efficient and more prosperous citizens.

For the nation: Results measured in terms of the conservation of human life.

Representatives will be sent to Congress from all the leading nations, and from all the leading educational scientific, medical and hygienic institutions and organizations of this country.

PERSONALS

Blanchard, Arthur H., Columbia University, delivered lecture on "Highway Engineering in Europe and America" before the Brooklyn Institute of Arts and Sciences on March 31.

Hottel, Howard, Trenton, N. J., city chemist, has resigned to fill a position in Chicago.

Kingsley, E. A., consulting engineer, Little Rock, Ark., has been appointed state highway engineer by Reuben G. Dye, chief commissioner of the new State Highway Commission. Consulting with Prof. J. J. Knoch, head of the civil engineering department, University of Arkansas, he will proceed at once with the organization of the Highway Department. Mr. Kingsley was city engineer of Little Rock, from 1904 to 1911.

Pullar, H. B., Chicago, Ill., formerly assistant manager and chief chemist of the American Asphaltum and Rubber Company and also chief chemist for J. F. Hill, paving contractor and C. H. Enzenroth who was associated with him, have formed the firm of Pullar and Enzenroth, engineering chemists, Detroit, Mich. The new firm will organize a system for inspecting pavements and roads and testing materials and the keeping of detailed records which will interest engineers, officials, contractors and producers.

The following city officials have recently been elected or appointed:

IDAHO.

Halley—Mayor, H. R. Plughoff; City Engineer, Steward Campbell.

Preston—Mayor, J. U. Larsen; City Engineer, G. H. Carver.

Boise—Mayor, Arthur Hodges (re-elected).

Coeur d'Alene—Mayor, R. S. Nelson. Sand Point—Mayor, C. E. Ewing.

IOWA.

Ottumwa—Mayor, Patrick Lenney. Mason City—Mayor, John Stanton. Manchester—Mayor, F. E. Richardson.

WISCONSIN.

Ashland—Mayor, Clarence Dennis; Commissioners, W. G. Nohl, James Phillips.

La Crosse—Mayor, A. J. Sorensen.

Racine—Mayor, W. S. Goodland (re-elected); City Clerk, Chas. Riba.

Pepin—Mayor, C. H. Schleuter.

Ladysmith—Mayor, A. C. Thompson.

OKLAHOMA.

Guthrie—Public Utilities Commissioner, C. C. Clothier.

Enid—Mayor, Mr. Bowers (re-elected); Commissioners, L. H. Kerr, J. L. Berger, Frank Brooks.

Lawton—Commissioners: Public Safety, Henry Warren; Public Property, Dick Jones; Finance, W. B. Turner.

Ardmore—Mayor, W. R. Roberts; Chief of Police, B. E. Booker; Commissioners, Tom Carter, W. S. Fraley.

McAlester—Mayor, B. A. Enlow; Commissioner Public Works, F. D. Pitman.

Okmulgee—Commissioner of Finance, Richard Jenness.

Altus—Mayor, Cage Beach.

Yarmouth—Moderator, Clarence L. Bucknam; Road Commissioner, John J. Brooks; Chief of Fire Department, Chas. E. Greenleaf.

Phillips—Moderator, Hon. N. P. Noble; Clerk, C. M. Hoyt.

COLORADO.

Fairplay—Mayor, M. I. O'Mailia.

Grand Valley—Mayor M. H. Streit.

Boulder—Mayor, Armstrong; City Clerk, O. P. Clark.

Walsenberg—Mayor, James B. Dick.

Fort Morgan—Mayor, F. M. Patterson (re-elected).

Glenwood Springs—Mayor, C. D. Barne.

Durango—Commissioner of Water and Sewers, W. H. Redman.

Montrose—Mayor, A. C. Dutcher.

Cripple Creek—Mayor, J. E. Hanley; City Clerk, Jas. Butler.

Trinidad—Mayor, W. P. Dunleavy.

Holly—Mayor, J. B. Harden.

Fruita—Mayor, A. J. Lee.

Debeque—Mayor, S. K. Walker.

Lamar—Mayor, J. K. Doughty; Clerk, S. E. Cook.

Gunnison—Mayor, E. M. Nourse (re-elected).

La Junta—Mayor, J. N. Land; City Clerk, F. W. Brown.

Canon City—Mayor, F. T. Smith (re-elected); City Clerk, J. V. Blake.

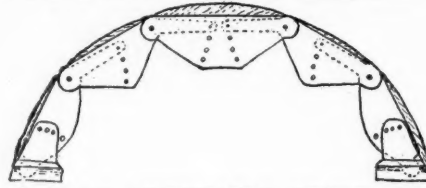
Las Animas—Mayor, J. D. Brown.

Rifle—Mayor, Fred Monroe.

MUNICIPAL APPLIANCES

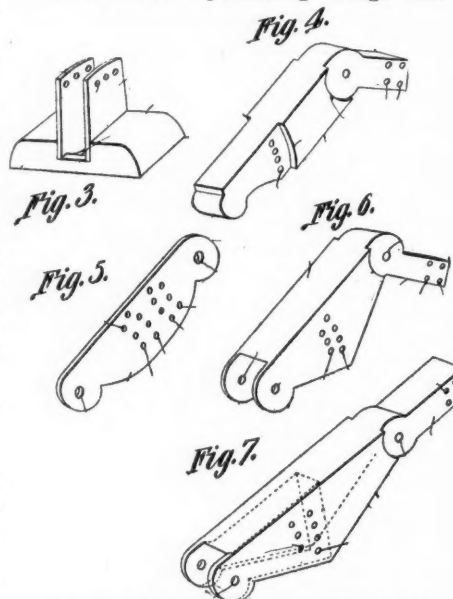
Adjustable Centering

Henry H. Frick, Fricks, Pa., manufactures an adjustable centering, the same units of which are used over and over for making all sizes and shapes of forms for building culverts, sewers, bridges, subways, floors, walls, etc.



ARCH OF ADJUSTABLE CENTERING.

Fig. 3 shows the skewback or base of the centering, having a concaved seat adapted to receive the round lower end as in Fig. 4, which fits in between two upstanding wings hav-



UNITS COMPOSING ADJUSTABLE CENTERING.

ing a series of holes which when brought into alignment and a pin placed therein will set the curve for the shape of the centering. Fig. 4 is the first unit and is only used to fit into the base of Fig. 3.

Fig. 6 shows the units that will fol-

low after unit Fig. 4. There are two wings between which the ends or extension will enter by placing a pin through them. To set the curve a pin is placed into the holes of the extension and through those of the extension end, continuing with units Fig. 6 until the proper size is reached when the plates Fig. 5 are used and fastened thereon. The opposite side is built up the same way.

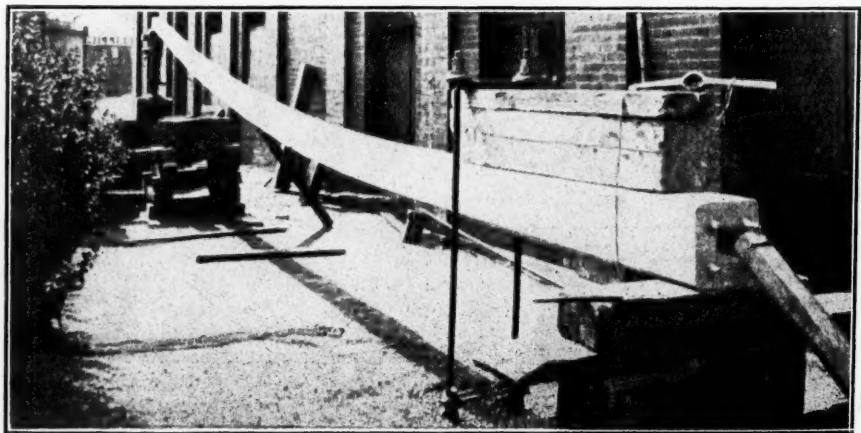
Fig. 7 shows the unit with the end or extension straight; this will make a band instead of a center or can be used to alter the shape in forms.

The more units used the larger the span or structure. The changing of the curves or contour of the form permitting the structure to be employed to different rises, angles, curves, etc., is made by the securing of the pins in the different holes.

Reinforced Hollow Concrete Poles.

The National Reinforced Concrete Corporation, Monadnock Building, San Francisco, Cal., control patents and processes for making reinforced hollow concrete poles. The company is prepared to execute contracts for the complete equipment of all types of pole lines or to establish agencies on the basis of a moderate royalty. The poles are said to be free from the objection hitherto made regarding concrete and iron poles as to initial cost and weight. Hollow concrete poles, 35 feet in length, 7 inches at the top, and 16 inches at the butt, cored out so that each side is 2½ inches thick, weigh 2,460 pounds and will carry a strain of 1,000 pounds side pull when set in the ground six feet. The poles are reinforced with twelve ¼-inch deformed high carbon steel rods and can be made to carry any side pull by the introduction of additional steel in the butt of the pole. The poles are set in the same general manner as ordinary poles. They are most easily set with a little giant pole raiser. With this device three men set a pole.

The poles are made by means of a special mold and telescopic core. A pole can be made every 24 hours with



CONTRACTORS' PORTABLE TOOL CART. SHOWING FLEXIBILITY.

one outfit. The poles are attractive in appearance, can be made any length, with or without steps. The quantity of material required to make a pole 35 feet in length, 7 inches at the top and 16 inches at the butt is as follows: 12 cubic feet $\frac{1}{2}$ -inch stone, 8 cubic feet sand, 3 cubic feet cement, 430 feet $\frac{1}{4}$ -inch deformed high carbon steel.

A feature of the reinforced hollow concrete pole is the ease with which wires from overhead can be connected with underground systems or for service wires to track and to buildings, doing away with unsightly wiring from the tops of poles. The large amount of steel used as reinforcement also serves as protection from lightning. Heavy maintenance charges are said to be avoided by the use of concrete poles; the life of modern poles is only ten years, less in some climates. The cost of a concrete pole is said to be considerably less than that of a wooden pole.

Some notable installations have already been made. In Oklahoma City over 2,000 poles have been installed now from three to seven years old. A general contract is in force to replace all wooden with concrete poles, all in accordance with a city ordinance.

Self-Locking Metal Culvert.

W. T. Shannon, Union Trust Building, Cincinnati, O., manufactures a metal culvert, shown in the illustration, for which unusual merits are claimed in respect to method of assembling, adaptability and efficiency. Where headroom is limited, as is generally the case its capacity exceeds the circular design by over 100 per cent. The smooth flat bottom accelerates the flow and the maximum capacity is available at all times. The Shannon culvert will withstand great pressure, due to the reinforcement provided at the extremities of the arch by the channels in the base. The culvert is composed of two elements, a flat base and a corrugated arch, which are automatically locked and permanently held together by pressure upon the arch. As no bolts or rivets are used, the protective coating is unbroken. The grooves found in either side of the base



SHANNON SELF-LOCKING CULVERT.

constitute a perfect lock for both the bottom sections and the corrugated arches. As the sections are nestable they occupy little space in transportation.

Contractors' Tool Carts.

The Lansing Company, of Lansing, Mich., placed on the market a contractor's tool cart, mounted on wheels. Although most of the up-to-date contractors have given up the use of piano box tool boxes, and even well made boxes without wheels, on account of the unreasonable cost of moving the box along the line as the work progresses, however, many contractors do not know that they can purchase a cart ready made and suitable for the purpose. The cart mounted on wheels usually seen in contractors' outfits are generally made by a carpenter and mounted on any kind of wheels available. The result is that these home made tool carts are expensive and clumsy.

It was in view of these facts that the Lansing company decided to put a finished tool cart on the market suitable for the purpose in all respects and manufactured on a business basis as wagons are. The illustration shows the result, a neat, convenient substantial cart but not too heavy. A description of the dimensions follows: Length over all, 10 feet 5 inches, length of box or body outside, 82½ inches; width all over, 58½ inches; width of box or body outside, 34½ inches; wheels 42 inches; tires, 1½x¾ in.; axle, 1½ inches square; height of box at side, 20 inches; height of box at center, 30 inches. Weight (approximately), 675 lbs.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago. Difficulties cities are experiencing in marketing bonds is preventing the carrying out of water works projects as planned. Quotations: 6 to 12-inch, \$27.50; 16-inch and up, \$26.50. Birmingham. The large concerns are operating at full capacity and accumulating stocks. No change has been made in quotations. Quotations: 4-inch, \$23.50; 6-inch, \$21.50. New York. Private buying at present is slow. Quotations: 6-inch, carload, \$23.50 to \$24.

Lead.—Demand is light. Quotations: New York, 4.50c.; St. Louis, 4.375c.

Oil Traction Engine.—The Allen Breed Tractor Company, with offices

in the Mercantile Library Building, Cincinnati, O., will soon incorporate with \$50,000 capital stock to manufacture oil-burning traction engines. The company has purchased the modern factory building on Carthage Pike, formerly occupied by the Fireproof Construction Company, which it expects to have in operation August 1.

Heslop Vulcanized Road.—The Heslop Vulcanized Products Company, Johnstown, Pa., are developing a new paving compound, patents for which have been applied for. The principal ingredient is a water resisting vegetable product. Stone screenings or other aggregate are thrown in a vat in which the compound is being heated. This material is then spread over a broken stone base. The surplus of the binding liquid runs down into the broken stone base, giving it added stability. An experimental piece of road was laid last fall under the supervision of a state road engineer, and it is reported as standing well under heavy traffic.

Motor Truck Tires.—"There will be another 10 per cent. reduction in truck tire prices," says C. W. Martin, manager of the motor truck tire department of The Goodyear Tire & Rubber Company, Akron, O. "This cut, which takes place immediately, and is the second cut which has occurred since the first of the year. This reduction is made possible not only by reason of our increased manufacturing facilities, but also by the recent drop in the price of crude rubber. Our contracts with manufacturers indicate that over 60 per cent. of the trucks that go out from the factories during 1913 will be equipped with Goodyear tires. This enormous volume of business has enabled us to turn out truck tires at a smaller cost per unit and at the same time give the utmost in workmanship and material.

Water Meters.—The Neptune Meter Company, 90 West street, New York, have issued an attractive booklet commemorating the manufacture of the millionth Trident meter. Sixteen years were required—June, 1892, to December 31, 1908—to manufacture and market the first 500,000 Trident meters. Only a little over four years—January 1, 1909, to March 4, 1913, were necessary to manufacture the second 500,000. The millionth Trident meter was stamped on March 4, 1913.



CONTRACTORS' PORTABLE TOOL CART.

WEEKLY CONTRACT NEWS

ADVANCED INFORMATION

BIDS ASKED FOR

CONTRACTS AWARDED

ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
S. D.	Watertown	May 12	Pavement, 45,000 yds.	O. M. Lane, City Aud.
N. J.	Camden	10 a.m., May 12	Asphaltum road dust oil, 50,000 gals.	J. P. Earl, Chrmn. Comm.
Ala.	New Decatur	May 12	Bituminous concrete, etc.	H. Hartung, C. Clk.
N. Y.	Poughkeepsie	4.30 p.m., May 12	Vit. brick, 20,000 yds.; sheet asphalt, 25,000 yds.; 25,000 ft. bluestone curbing	R. J. Shields, Pres. Bd.
Ky.	Louisville	2 p.m., May 12	Improving alleys	R. G. McGrath, Secy.
Pa.	Blakely	8 p.m., May 12	Stone curbing	C. J. Ganzemuller, Boro. Secy.
N. J.	Camden	11 a.m., May 12	Culverts	F. W. Gerecke, Chrmn. Bd.
Ia.	Iowa Falls	May 12	Pavement, 20,000 yds.	J. O. Gregg, C. Clk.
Cal.	Colton	May 12	Oiled macadam and asphalt, 1½ miles.	C. H. Wondries, C. Engr.
N. J.	Camden	11 a.m., May 12	Rock-Mac., 1 mile.	J. P. Earl, Ch. Comm.
N. J.	Glen Ridge	8 p.m., May 12	Cement sidewalks	J. A. Brown, Boro. Clk.
Ia.	Estherville	7 p.m., May 12	Cement sidewalks	N. B. Egbert, C. Clk.
N. J.	Ridgefield Park	10 p.m., May 13	Bituminous concrete, 6,163 yds.	M. D. Starker, Vil. Clk.
N. J.	Paterson	May 13	Macadamizing	I. A. Hopper, R. F. D. No. 1.
N. J.	Rahway	8 p. m., May 13	Vitrified brick	City Clk.
Wash.	Seattle	2 p. m., May 13	Longaker road	Co. Comrs.
O.	Clyde	May 13	Bituminated concrete, 8,000 yds.; brick, 10,000.	Fred Shaw, C. Clk.
Pa.	Harrisburg	10 a.m., May 13	Bituminous macadam penetration, 3 roads, 10 miles.	E. M. Bigelow, Hwy. Comr.
Fla.	Pensacola	Noon, May 13	Concrete pavement, 22,000 yds.	Geo. Rommel, C. Engr.
Ind.	Vincennes	May 13	Brick, sheet asphalt Bitulithic or wood.	J. B. Hershey, City Engr.
O.	Cleveland	11 a.m., May 14	Taylor No. 2 Road improvement.	J. F. Goldenbogen, Co. Clk.
Pa.	Scranton	Noon, May 14	Asphaltic macadam	Co. Comrs.
O.	East Youngstown	noon, May 14	Retaining wall	P. J. Carney, Clk.
Pa.	Uniontown	12 noon, May 14	Imp. road, 3,500 ft.	W. O. White, Engr.
Ind.	Fort Wayne	10 a.m., May 14	Concrete culverts	C. S. Brown, Co. Aud.
N. J.	Merchantville	8 p.m., May 14	Concrete curbing, 28,000 ft.	W. E. McAllister, Boro. Clk.
N. Y.	New York	10.30 a.m., May 14	Sheet asphalt, granite blocks, sidewalks, etc.	C. C. Miller, Boro. Pres.
N. Y.	New York	3 p.m., May 15	Bituminous pavement	C. B. Stover, Pres. Parks.
Ia.	Dubuque	May 15	Brick and macadam	J. Daniels, C. Engr.
O.	Lima	May 15	Brick or bit. macadam, 4,000 yds.	J. R. Morris, Dir.
Mich.	Houghton	noon, May 15	Bitumen bound macadam	R. Martin, Co. Engr.
Wis.	Marinette	May 15	Macadam, concrete gutter, etc.	Dept. P. Wks.
Canada	Regina	noon, May 15	Pavement, 183,000 sq. yds.; 80,000 ft. curb & gutter; 558,000 ft. concrete sidewalk.	F. McArthur, C. Engr.
Ind.	Fort Wayne	10 a.m., May 15	Paving three miles	C. H. Brown, Co. Aud.
O.	Columbus	2 p.m., May 15	Waterbound macadam, 1.03 miles in Union; Bit. surface concrete, 0.71 miles in Madison.	J. R. Marker, State Hwy Comr
Okla.	Tulsa	May 15	Paving, 15 blocks	T. C. Hughes, C. Engr.
Wis.	Wausau	May 15	Seven blocks of vitrified brick	Bd. Pub. Wks.
Sask.	Regina	Noon, May 15	Sidewalks and pavements	F. McArthur, City Engr.
Manitoba	Winnipeg	May 15	Refined asphalt and fluxing oil	Bd. of Control.
Pa.	Donora	May 15	Brick	George Allen, C. Clk.
Ia.	Monroe	noon, May 16	Wood and brick pavement	Mayor.
N. J.	Camden	10 a.m., May 17	Asphaltum road dust oil, 40,000 to 50,000 gals.	J. P. Earl, Chrmn. Comm.
Ia.	Belle Plaine	May 19	Brick, 8,400 sq. yds.	E. M. Ewen, C. Clk.
Ala.	Montgomery	May 19	Gravel roads, 6 miles.	T. H. Edwards, Co. Engr.
Ala.	Rockford	May 19	Surfacing with top soil; cost, \$4,000.	W. S. Kellar, H. Eng.
N. J.	Metuchen	8 p.m., May 19	Macadam, 3,500 yds.	H. S. Wilson, Boro. Clk.
O.	Ashtabula	May 20	Shale blocks, 23,600 sq. yds.	M. H. Turner, Dir. P. S.
O.	Euclid	noon, May 20	Sidewalks, several streets	Pease Eng. Co., Cleveland.
O.	Freemont	May 20	Brick pavement, 22,000 yds.	W. F. Schepflin, City Engr.
Ala.	Ashville	May 20	Chert road	Road Comrs.
N. Y.	Niagara Falls	May 20	Paving two streets	Bd. Pub. Wks.
N. Y.	Hudson	10.30 a.m., May 20	Relaying 4,975 lin. ft. curbstone, 13,600 sq. yds. vitri-field brick	H. M. James, Sec. Com. P. W.
O.	Painesville	May 21	Brick, 33,500 yds.	F. N. Downer, C. Engr.
Ind.	Anderson	10 a.m., May 21	Gravel roads	J. B. Bennefel, Aud.
Vt.	Burlington	2 p.m., May 24	Curbing and sidewalks during 1913.	F. W. Frechette, Ch. Comrs.
Neb.	Norfolk	5 p.m., May 26	Asphaltic concrete, 47,000 yds.; cost, \$97,000.	H. H. Tracy, Eng.
O.	Euclid	May 26	Sidewalks	F. H. Shoaff, V. Clk.
Okla.	Fort Sill	10 a. m., May 27	Roads and walks.	Constrn. Q. M.
Fla.	Pensacola	May 27	Granocrete, 22,000 yds.	G. Rommel, Jr., Ch. Engr.
D. C.	Washington	2 p.m., May 29	Asphalt blocks, vit. bricks, curbing, sewer pipe castings etc.	Dist. Comrs.
O.	Uhrichsville	noon, May 29	Park Valley Rd.	H. O. Snyder, Twnshp Clk.
Ala.	Red Bay	May 31	Surfacing with gravel; cost, \$4,000.	W. S. Kellar, Hwy. Eng.
Ala.	Red Bay	5 p.m., May 31	Gravel; cost, \$4,000.	W. S. Kellar, Hwy. Eng.
Wash.	Seattle	June 1	County roads, 6.4 miles.	Co. Comrs.
Ala.	Abbeville	June 2	Sand clay, 9 miles; cost, \$8,000.	W. S. Kellar, Hwy. Eng.
Minn.	Winona	June 2	Creosote block and brick, 15,000 yds.	H. M. Walling, C. Eng.
SEWERAGE				
Wis.	Antigo	2 p.m., May 10	Storm sewer, 1,950 ft.	J. McGreer, Ch. B. P. W.
Wis.	Bangor	May 12	Pipe sewers, 9,300 ft. 10 to 24-in.	S. B. Wheldon, C. Clk.
Ia.	Waterloo	7.30 a.m., May 12	Vit. pipe in several streets.	R. L. Degon, City Clk.
Sask.	Weyburn	May 12	Sewerage filtration plant, laying sewer & water pipe.	J. D. Murray, Sec. Treas.
Neb.	Geneva	2 p.m., May 12	Concrete pipe, 4,000 ft. 36-in.	F. R. Ashton, Dist. Secy.
O.	Bexley	noon, May 13	Sewage treatment plant.	A. E. Kimberly, Eng., Col'mb's
Mich.	Ironwood	May 13	Sewer in Pine street.	O. E. Olsen, C. Eng.
Md.	Baltimore	11 a. m., May 14	Vit. pipe, 34,500 ft. 8 to 22-in.	Bd. Awards.
N. H.	Charlestown	1 p.m., May 15	Sewers, 30,000 lin. ft.; 80 flush tanks, etc.	E. E. Davis, Eng.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Okla., Caddo	8 p.m., May	15..Sewers, 3,500 ft. 6 to 15-in., etc.	W. W. Boone, Ch. Trustees.	
Minn., Zumbrota	3 p.m., May	15..Pipe sewer, 2,200 ft. 8 to 10-in.	H. E. Weiss, V. Record.	
Mass., Fitchburg	May	15..Tanks, filters, &c; cost, \$200,000 to \$300,000.	L. A. Hartwell, Chf. Engr.	
Sask., Regina	Noon, May	15..Sewer pipe, 103,000 ft. 6 to 24-in.; 4,000 ft. 30 to 42-in. concrete pipe	F. McArthur, C. Engr.	
La., Ruston	Noon, May	15..Sewer system; cost, \$40,000	S. B. Pearce, Pres. Bd.	
O., Lancaster	noon, May	16..Lateral sewers.	R. F. Brown, Dir. P. S.	
N. J., Roselle Park	8 p.m., May	16..Pipe sewer, 2,170 ft. 8-in.	W. H. Luster, Boro Engr.	
Ind., Crawfordsville	May	19..Sewers, 24 and 36-in., cost \$8,000.	F. G. McIntyre, Ch. B. P. I.	
Pa., Washington	May	19..Vit. pipe, 3,200 ft., 4 to 8-in.	D. C. Morrow, Engr.	
O., Fostoria	May	20..Vitrified or cast-iron pipe, 1,100 ft.	Chas. Latshaw, C. Engr.	
N. J., Ridgewood	May	20..Addition to disposal plant.	F. Pfeifer, Comr. P. Imp.	
la., Belmont	7.30 p.m., May	20..Vit. pipe, 14,000 ft. 6 & 8 in.	G. C. Byers, Twn. Clk.	
Ind., Boonville	7.30 p.m., May	20..Brick or concrete; cost, \$83,000.	L. Meyer, C. Eng.	
Mich., Ann Arbor	May	21..Vit. pipe, 1 mile 8-in.	M. Osgood, C. Eng.	
Md., Baltimore	11 a. m., May	21..High level interception, Sec. 6, vit. pipe, 8 to 15-in., 104,000 lin. ft.	Bd. of Awards.	
Ind., Ft. Benj. Harrison	10 a.m., May	21..Alterations to sewage disposal plant.	Maj. R. S. Smith, Q. M. Corps.	
N. J., Bloomfield	May	25..Tile pipe sewer, 1 mile.	E. Baechlin, Eng.	
la., Eldora	June	1..Extensions, cost \$15,000.	S. B. Gardner, Eng.	
O., Ravenna	June	2..Settling tanks & siphons; cost, \$10,000.	W. H. Linton, Dir.	

WATER SUPPLY

Pa., Scranton	10.30 a.m., May	12..Fire hydrants	W. G. O'Malley, Dir.
Canada, Regina	noon, May	12..Water mains	J. M. Mackay, Supt.
N. J., Chatham	May	12..Extending water & light system.	A. M. Trowbridge, Ch. Comra.
Minn., International Falls	May	12..Water main	R. C. Fraser, C. Record.
Canada, Port Arthur	5 p.m., May	12..Steel pipe, 46,000 ft. 12 & 24-in.	L. M. Jones, C. Engr.
Minn., Maple Lake	8 p.m., May	12..Waterworks	E. P. Scanlan, C. Rec.
Canada, St. Thomas	noon, May	15..Water mains, 1,600 ft.	S. O. Perry, Secy. Comra.
Minn., Zumbrota	3 p.m., May	15..C-I. pipe, 1,540 ft. 4-in.; hydrants, etc.	H. E. Weiss, V. Record.
Kan., Madison	May	15..Waterworks	Rollins & Westover, Kan. City.
Quebec, Montreal	May	16..Enlarging aqueduct, 203,000 cu. yds. concrete, &c; cost \$2,500,000	L. N. Senecal, Secy.
D. C., Washington	3 p. m., May	20..Air lift pumping plant, Oklahoma City.	Supervising Arch.
Wis., Turtle Lake	8 p. m., May	20..Waterworks	F. G. McKenzie, V. Clk.
R. I., Providence	May	21..Pumping engine, 30,000 gal.	J. H. Gainer, Mayor.
N. C., Fort Caswell	May	26..Concrete reservoir, 400,000 gals.	J. R. Campbell, Comr.
Ill., Moline	2 p.m., May	26..Pump and pit.	L. O. Jahns, Comr.
Ky., Henderson	9 a.m., May	27..Corrugated metal culverts	S. H. Kimmel, Engr.
Neb., Ralston	10 a. m., June	3..Cast-iron pipe, 31,000 ft., 4 to 8-in.	C. M. Skinner, Ch. V. Bd.
Mont., Billings	June	17..Pumping plant	C. E. Durland, City Engr.
N. J., Newark	July	1..Three centrifugal pumping engines.	J. S. Gibson, Clk. Comrs.
Egypt, Cairo	July	1..Furn. equip'm't for pump'g station, 7,000,000 meters.	Pub. Works Ministry.

LIGHTING AND POWER

Mass., Holyoke	2 p.m., May	12..Induction motor and D. C. generator.	J. J. Kirkpatrick, Mgr.
Fla., Chipley	May	13..Engines, generators and distribution system.	Light & Power Co.
Manitoba, Winnipeg	11 a.m., May	15..Large generators for turbines	M. Peterson, Secy.
O., Toledo	10 a.m., May	19..Power house for hospital	C. J. Sanzenbacher, Co. Aud.
Ind., Goshen	3 p.m., May	19..Generator, 250 KVA. lamp equipment, etc.	Burns & McDonnell, Engrs., Kansas City, Mo.
Ind., Indianapolis	May	19..Fire headquarters	Bd. Pub. Wks.
Mich., Reading	May	20..Power plant and equipment.	E. K. Goodman, Engr.
Fla., Chipley	2 p.m., May	20..Generator, 2,300 volt, and engine.	A. A. Myers, Pres.
Canada, Pas.	1 p.m., May	20..Steel pipe, 14,000 ft. oil engines, generators, etc.	H. H. Elliott, Secy.
Canada, Strassburg	8 p. m., May	20..Electric light plant.	S. L. A. Smith, Secy.
N. J., Camden	8 p.m., June	15..Power station, boiler & generating equipment, electrical work for station & distribution system.	F. A. Finkelday, Chrmn. Com.
N. J., Camden	June	16..Underground conduits, 219,000 ft., subway, 24,000 ft., 128 standards, &c.	C. Council.
Chile, Santiago	Sept. 10.	10..Illuminating plant for port works	Comision de Puertos.

FIRE EQUIPMENT

N. Y., New York	10.30 a.m., May	12..Fire alarm telegraph supplies.	Josh. Johnson, Comr.
Tex., Denison	7.30 p.m., May	14..Hose, 2,000 ft. 2 1/2-in.	A. E. Clymer, C. Secy.
N. J., Ocean City	May	15..Two tractors, 1 motor combination chemical and hose, 1 chief's car with 35-gal. tank.	Comrs.
O., Akron	May	20..Three comb. motor pumping engines, chemical and hose wagons, 1 aerial truck, 2 comb. chemical and hose wagons, 1 supply wagon, 3 tractors.	Dan Stein, Director.
Md., Brooklyn	May	24..Firealarm system	O. Zentgraf, Chrmn. Comm.
N. J., Kearney	May	28..Motor triple combination apparatus.	Twn. Council.

BRIDGES

N. J., Camden	11 a.m., May	12..Four bridges	J. J. Albertson, Co. Engr.
Minn., Red Wing	1 p.m., May	13..Five bridges	C. H. Meyer, Co. Aud.
N. D., Cavalier	2 p.m., May	14..Bridges during 1913.	W. W. Felson, Co. Aud.
N. J., Paterson	2 p.m., May	14..Concrete bridge	J. MacDonald, Chn. Freehold'rs
Ill., La Salle	May	15..Steel and concrete bridge	A. Johnson, State Engr.
Miss., Long Beach	7.30 p.m., May	15..Concrete bridge	Wm. Tell, Twn. Clk.
Mass., Barnstable	May	17..Concrete girder bridge.	F. C. Wales, Eng., Boston.
Canada, Toronto	noon, May	19..Concrete arch over river.	E. A. James, Chf. Eng.
N. J., N. Brunswick	2.30 p.m., May	19..Concrete bridge	P. H. S. Hendricks, Dir.
Kan., Kansas City	May	19..Reconstrn. bridge	F. M. Halcomb, Co. Engr.
D. C., Washington	2 p. m., May	20..Stone Bridge.	Secy. Smithsonian Inst.
Ind., Greenfield	June	23..Bridges, 19.	L. Wood, Co. Aud.
W. Va., Lewisburg	June	3..Concrete bridges	J. E. Bougher, Eng.
O., Hamilton	June	4..Several concrete bridges.	Co. Comrs.
D. C., Washington	2 p.m., June	24..Seven-span concrete bridge	District Comrs.

MISCELLANEOUS

Ala., Jasper	noon, May	12..Jail	J. W. Shepherd, Judge
N. J., Belleville	May	14..Town hall	Town Clk.
Ind., Indianapolis	10 a.m., May	19..Retaining wall	W. T. Patten, Co. Aud.
Pa., Chester	8 p.m., May	19..Street cleaning	Wm. Provost, Jr, Ch. Comm.
N. J., Trenton	11 a.m., May	19..Three motor trucks, 3 macadam steam rollers, 3 gasoline steam rollers, 6 road machines, 6 sprinkling wagons, 18 dump wagons, 2 tank wagons, 2 pressure distributors, road signs, gasoline pumps, small tools, etc; also lign, inorganic and bit. binders.	E. A. Stevens, Comr. Navy Dept.
D. C., Washington	May	20..Automobile ambulance	A. J. O'Keefe, Comr.
N. Y., New York	2 p.m., May	22..Improving bridge Plaza.	W. H. M. McMillin, Clk.
C., Youngstown	noon, May	23..City building	J. L. Hackney, Chrmn. Comrs
Fla., Tampa	noon, June	3..Jail	
Cal., Los Angeles	June	20..Bldg. & operating garbage disposal plant. Reduction or incineration	Bd. of Public Works.

STREETS AND ROADS

Tuscaloosa, Ala.—The \$90,000 of street improvement bonds recently issued by city to Southern Asphalt and Construction Company and purchased by Clark-son and Morrisette, prominent law firm, have been resold to Cincinnati firm and money has been received in Tuscaloosa for same.

Chico, Cal.—Humboldt ave, is to be macadamized.

Los Angeles, Cal.—One of the most important extensions of Los Angeles county boulevard system is projected in plan for macadamizing national boulevard from its intersection with Washington boulevard at "Ivywild" to city limits of Santa Monica, leading over paved streets to center of Ocean park amusement district.

Oroville, Cal.—Effort will be made to have road run from Oroville, to connect with State Highway should it be laid out along proposed route from Marysville and Yuba City to Chico. It is proposed to run this road from Oroville to Tres Vias and from there to some point on State Highway.

Roseville, Cal.—Citizens have voted \$20,000 bond issue for street improvements.

Sacramento, Cal.—Report of executive committee of Sacramento County Good Roads Convention recommends election be called for bonding county in sum of \$1,850,000 for purpose of constructing highways totaling 350 miles in length.

Sacramento, Cal.—Appropriation of \$80,000 has been approved for State highway through Topanga canyon. Proposed road will run from Malibu road to town of Calabasas.

Sacramento, Cal.—Committee on Ways and Means has approved expenditure of \$75,000 for State highway from Banning to Yuma.

Sacramento, Cal.—In bill presented to Legislature by Assemblyman Emmons, sum of \$130,000 is asked for proposed Alpine-Inyo State highway. Under provisions of bill road is to be from Os-good station, on Lake Tahoe wagon road southeast to Independence, and from Calaveras Big Tree grove to junction of Silver Creek and east fork of Carson River. Road is one asked for by hundreds of residents of districts in its vicinity.

San Francisco, Cal.—At instance of Mission Promotion Association Public Works Commissioners have requested appropriation of \$734,000 for reconstruction of curbs and paving of streets throughout district.

San Francisco, Cal.—Recommendation has been made to Board of Supervisors that budget provide for paving of 17th st., between Bryant and Hampshire sts., fronting Franklin square; of the Church st. frontage of Garfield square, between 25th and 26th sts. All of these streets are to be paved with asphalt. The Dolores and 25th st. frontages of Mission Park will be paved before July 1, as will also Treat ave., facing Garfield square, by appropriations recommended by the association in its prior budget request. Appropriations have also been asked by Board of Public Works of \$4,813 to construct pavement and sidewalks on 17th and Mariposa sts., and on Carolina and Arkansas sts. Appropriation is also requested to improve Precita ave. frontages of Bernal Park. Amounts asked to improve streets opposite school property in Mission aggregate \$10,075.

Santa Ana, Cal.—Final arrangements have been made for disposing of \$1,270,000 worth of bonds for construction of the Orange county good roads system, of which coast boulevard is a part.

Denver, Colo.—Alley paving to cost \$18,123 has been ordered by Board of Public Works, between High and York Sts., from Sixth to Eighth Ave.; between Williams St. parkway and High St., from Sixth to Seventh Aves., and between Gilpin and High Sts. from Fifth to Sixth Aves.

Washington, D. C.—Expenditure of \$3,000,000,000 for good roads, \$1,000,000,000 being for construction and \$2,000,000,000 for maintenance, investment extending over period of fifty years, has been proposed in plan submitted to joint congressional committee of federal aid in construction of post roads by former Senator Bourne of Oregon.

Dunnellton Fla.—Bond issue of \$50,000 has been voted for paving of main business streets and other improvements.

Tampa, Fla.—Tampa council has ordered something like 11,350 ft. of streets

paved with "natural lake" asphaltic concrete, or about 36,223 sq. yds. If asphaltic concrete bids should run 50 cents higher per sq. yd. than it has been costing city to pave with vitrified brick, the extra cost would be about \$17,000.

Macon, Ga.—City Council has authorized street committee to purchase enough road oil to cover one and one-quarter miles of road in outskirts of city. Oil is to be used as a test for doing away with dust. Alderman Happ, chairman of street committee, has reported that it would require 4,400 gallons of oil to cover mile of road, fifteen feet wide. First tank which will be purchased and used as test will contain 6,000 gallons. If test proves satisfactory, enough oil will be bought to cover every road leading into city.

Waycross, Ga.—Corswell avenue will have a parkway.

Moscow, Idaho.—Paving of boulevard from Northern Pacific depot to University campus is being considered.

Chicago, Ill.—Moving sidewalk, five miles in length, will be recommended to city council along with plans for new Lake Shore boulevard.

Fulton, Ill.—Oiling of streets is being discussed.

Ottawa, Ill.—Special election is being held in all wards of city for purpose of voting upon question of whether West Ottawa shall be paved according to plans outlined by board of local improvements.

South Bend, Ind.—Board of Works has received and placed on file petition for alley extension from Indiana ave., south to Perley st., between Michigan and Main sts.

Clinton, Ia.—A model stretch of highway between Sterling, Ill. and Clinton, Ia., is being considered.

Council Bluffs, Ia.—County Bd. of Superv. will improve 250 miles of highway throughout county.

Des Moines, Ia.—Residents of North-east Des Moines have started movement for paving project for that part of city that is to equal in magnitude complete Beaver avenue road extending out through northwest corner of town. Petitions are being circulated for stretch of paving nearly three miles long to extend from corner of East Eighteenth street and North avenue along North avenue to East Thirty-third street and thence north on Thirty-third street to Easton boulevard, which touches edge of Grandview park.

Oskaloosa, Ia.—Extensive paving improvements have been authorized.

Fort Scott, Kan.—Bonds in sum of \$1,710 will be issued for improving of Burke St. G. N. Sanford, City Clerk.

New Orleans, La.—Highway department, State Board of Engineers, announces that sealed proposals are invited for recrowning and graveling of public highway from Baton Rouge to Hope Villa, distance of fourteen miles. Information as to location and character of work and extent of materials required can be obtained from office of highway department in Courthouse.

Biddeford, Me.—City square will be paved this coming summer.

Cumberland, Md.—Ordinances have been passed for paving of various streets.

Lowell, Mass.—Petition has been received asking that Andover st. be resurfaced, crowned and oiled.

Grand Haven, Mich.—Request of road commission for permission to dispose of another \$100,000 has been granted.

Grand Rapids, Mich.—Good Roads Commissioners of Kent county will ask Board of Supervisors at May session to authorize another sale of bonds for road building purposes. Fund of \$50,000 is all that remains of \$200,000 bond sale conducted last June.

Bond issue for good roads authorized by voters amounts to \$600,000, of which amount \$400,000 remains to be distributed.

Saginaw, Mich.—Board of public works has submitted estimates of \$25,000 for sidewalks this coming year.

Duluth, Minn.—Paving of Twenty-third avenue is being discussed.

Grand Rapids, Minn.—Board has voted favorably on petitions for roads from Cass county to St. Louis county, passing through Grand Rapids, from the Aitkin line to Koochiching, from Balsam to Alwood, from Marcell to Third River from Effie to Deer Lake, and from Deer River, north.

Camden, N. J.—Resolution has been presented authorizing advertising of sale of \$100,000 worth of bonds for new street improvements, bids for which can be sent until May 14.

Elizabeth, N. J.—Oiling of telford paved streets is being discussed.

Hammondton, N. J.—Taxpayers will vote on \$86,000 bond issue for sewage system.

Concord, N. H.—Sum of \$12,000 has been appropriated for building of highway from village of Cornish to estate to be occupied by President.

Hornell, N. Y.—At special election held in Hornell taxpayers by vote of 762 to 72 have voted to pave East ave, at cost of \$16,000.

La Salle, N. Y.—Proposition will be voted on whether or not village shall raise \$5,000 by sale of bonds for purpose of improving Creek road to Boulevard.

Niagara Falls, N. Y.—Petitions have been received asking for various street improvements.

Niagara Falls, N. Y.—Sum of \$5,000 will be voted for improving of brick road.

Rochester, N. Y.—Improvement of various streets has been authorized.

Rochester, N. Y.—Construction of boulevard along lake front is being discussed.

Sea Cliff, L. I., N. Y.—Improvement of Sea Cliff road is under consideration.

Syracuse, N. Y.—Ordinances have been adopted fixing costs of following improvements: Paving Willis avenue, Genesee street to the Erie canal, \$72,100 and \$5,500 as the city's share; Milton avenue, Genesee street to Chemung street, \$44,000 and \$1,300 as the city's share; Wilbur avenue, Gifford street to Tompkins street, \$58,700 and \$8,300 as the city's share; Tompkins street, Wilbur avenue to Milton avenue, \$31,400 and \$700 as the city's share; Milton avenue, Tompkins street to Genesee street, \$40,300 and \$1,600 as the city's share; Robineau road, \$16,700 and \$370 as the city's share; East Lafayette avenue, South Salina street to East Brighton avenue, \$8,000 and \$300 as the city's share.

Hubbard, O.—Bond issue of \$50,000 has been voted for improvement of highways in Hubbard township.

Massillon, O.—Ordinances have been passed for improvement of various streets. J. J. Donahue, Clerk of Council.

Middletown, O.—Commissioners have instructed Engineer Dillon to prepare plans for repair of road between Poast-town and Tytus ave., and for concrete bridge at Collinsville.

Toledo, O.—Council has passed ordinance to improve Summit st. from Cherry to Lagrange by addition of 32 electric lights.

Toledo, O.—Final ordinance for repaving Bancroft ave. from Vermont to Lawrence aves., has been passed by council and work will be done this summer.

Orillia, Ont.—Citizens have voted to issue \$30,000 bonds for construction of cement sidewalks.

Albany, Ore.—Petitions have been presented to City Council by W. W. Ashby, local superintendent of Warren Construction Co., asking for pavement on 30 blocks of streets and alleys, price of \$1.50 per square yard being quoted for gravel bitulithic.

Barnesboro, Pa.—Ordinances covering paving of Matilda, Maple and Mary streets, Barnesboro, have been passed finally by Council and bids for work are being solicited. Estimates will be received until 8 o'clock May 8. Paving will be done on footfront plan.

Butler, Pa.—According to statement of H. W. Claybaugh, engineer in charge of this district of state highways, there will be considerable work done on state roads in Butler County this year.

Erie, Pa.—All paving bids received have been rejected and will be readvertised.

Franklin, Pa.—Ordinances have been adopted for improvement of various streets.

Hazleton, Pa.—Broad street will be repaved from Wyoming to Locust streets.

Hastings, Pa.—Hastings Council will meet in regular session and will probably pass finally ordinances for paving of principal streets of town under foot-front plan. Ordinances were passed two readings at special meeting of councilmen last evening. Bids on work will shortly be solicited.

Johnstown, Pa.—City Engineer M. Lee Masterton has practically completed his inspection of plans for P. R. R. improvements, including elimination of Morrellville grade crossings.

Mendville, Pa.—By vote of nearly two to one, approval has been given of recommendation of city administration for issue of bonds to amount of \$60,000 for paving of 12 additional streets.

Pittsburgh, Pa.—Widening of Diamond St. will probably be accomplished simultaneously with cutting of "Hump" streets.

Providence, R. I.—Special election will be held June 3 for voting on bond issue of \$700,000 for highway improvements.

Sioux Falls, S. D.—Resolutions have been adopted for improvement of various streets. Walter C. Leye, city auditor. G. W. Burnside is mayor.

Sioux Falls, S. D.—Bids will shortly be advertised for paving of various streets.

Burns, Tenn.—Dickson County has voted for road bond issue of \$250,000 for improvements of roads as authorized by legislature several weeks ago.

Greenville, Tenn.—The \$500,000 road bond issue has been passed by majority of 357 out of total vote of 3,817.

Nashville, Tenn.—Improvement of streets to Shelby Park is being urged.

Beaumont, Tex.—Acting upon request of Jefferson County Highway Commission county commissioners' court has ordered bond election to be held on May 22, on issuance of bonds in sum of \$500,000 for the improvement of public roads throughout county.

Belton, Tex.—Commissioners' court has called election to vote on good roads bond issue of \$150,000 on May 16.

Denison, Tex.—City Council has rejected all bids for paving of West Main street and Sears street, and has stated that city would do its own paving.

Gause, Tex.—Citizens have decided in favor of issuing \$50,000 bonds to improve Gause roads.

Midland, Tex.—Election held in Midland county to decide whether county shall issue \$50,000 in bonds for purpose of building good roads, resulted overwhelmingly in favor of issuing of bonds.

Smithville, Tex.—The commissioners' court of Bastrop county have ordered County Judge Price to advertise for bids for building \$100,000 worth of good roads in the commissioners' precinct.

Texarkana, Tex.—Work has been commenced in Miller county on preliminary plans for improvement district to provide funds to construct Miller county's portion of Little Rock-Texarkana highway. It is proposed to take advantage of federal government's offer of \$10,000 to any county which raises twice this sum for construction or improvement of post roads.

Nephi, Utah.—About 10 miles of sidewalks is contemplated; cost, \$16,700. J. H. Carter is County Surveyor.

Provo, Utah.—Paving of Academy st. has been authorized.

Bristol, Va.—Three magisterial districts of Scott County have voted by majority of over 500 to issue nearly \$200,000 in bonds to build new roads to connect up with Washington County system, now in course of construction. Another magisterial district of Scott will soon vote on good roads and if bond issue carries it will give new macadamized highway from Bristol to the Kentucky state line, as part of the Bristol to Lexington highway promoted by Bristol Board of Trade.

Eugene, Va.—Petitions have been received for about a mile of street paving.

Tacoma, Wash.—Council has ordered paving to proceed on North L St. from 6th to Steele Sts., and on North 8th, 9th, 10th and 11th Sts. from K to L Sts. Paving on Sheridan Ave. and O St. from North 5th to 6th Sts., and on North 6th St. from K St. to Ainsworth Ave., has also been ordered.

Chippewa Falls, Wis.—City Council will pave W. Cedar street, at cost of \$59,755.

Elcho, Wis.—Town will spend \$5,100 for improvement of roads during coming year.

De Pere, Wis.—Improvement of roads and highways is under consideration.

Racine, Wis.—Paving in north side of city is being asked for.

Superior, Wis.—City commission contemplates paving North Sixth street from Tower avenue to Banks avenue, and Ogden avenue from North First street to North Third street. Pavements laid on concrete base will be used on both streets.

Tomah, Wis.—Tomah Business Men's Club has voted appropriation of \$350 for each mile of good roads voted by farmers. Same action last year resulted in making of six miles of macadam roads.

Edmonds, B. C.—A proposition will be submitted to voters for \$500,000 for building of permanent roads.

CONTRACTS AWARDED.

Los Angeles, Cal.—For grading and paving work in Angeles Mesa to Brash-Burns Company, at about \$40,000.

Sacramento, Cal.—Bids have been opened by the California highway commission for eight miles of road between south boundary of Ventura County and Newberry park, estimated to cost \$56,734. Only bid was that of George A. Rogers, \$67,922. Lowest bids for three jobs in San Mateo County were as follows: Southern County boundary to Bersford, two miles, Ralsch Improvement Co., \$19,233; north boundary to Daly City, one and two-tenths miles, Ralsch Improvement Co., \$15,151; two-tenths of a mile in Burlingame, Clark & Henery, \$3,688. For a job in Santa Clara County, from San Jose to Edenvale, four and a half miles, R. Keating & Sons was the lowest bidder at \$17,819.

Sacramento, Cal.—By California Highway Commission for construction of state highway in San Mateo county, Div. IV, Route 2, Section B-2 to Ralsch Improvement Company, San Francisco, at total bid of \$19,233.85; for state highway in San Mateo county, Div. IV, Route 2, Section A-2 to Clark & Henery Const. Co., Sacramento, at \$3,688.00; for Div. IV, Route 2, Section A-3 to Flinn & Treacy, San Francisco, at \$14,040.00; for highway in Santa Clara county, San Francisco, at \$17,819.75; for highway in Ventura county, all bids were rejected. Earle Freeman, Secy.

San Jose, Cal.—The State Engineering Advisory Board has approved State highway contracts as follows: San Mateo county, 0.2 mile Oak Drive to Bellevue Drive, Clark & Henery, \$3,688; 1 mile north boundary to Daly City, Flynn & Treacy, \$14,040; 1.8 miles San Mateo to Bersford, Ralsch Improvement Co., \$19,233; Santa Clara county, 4.3 miles San Jose to Edenvale, Richards & Keating, \$17,819; Ventura county, Newbury Park to south boundary, bids rejected, too high.

Waterbury, Conn.—Contracts for paving and sewer work on various streets in city, aggregating over \$30,000, have been awarded by Board of Public Works to J. S. Barbara, Antonio Lambo and Frank Di Orio, all of this city. Contracts on all the streets were awarded with exception of Willow street.

Contract for paving North Elm and Water streets was awarded to J. S. Barbara for \$8,504.92. Contract for paving of Meadow street was awarded to him also, price for this job being \$1,239.85. Mr. Barbara was also awarded contract for paving Bank street and Exchange place at a cost of \$12,562.

Assumption, Ill.—By Bd. of Local Improv. contract for paving 1st, South and Locust sts. to Hoeffken Bros., of Belleville, Ill., for \$33,758.

Dixon, Ill.—By Bd. of Local Improv. contract for paving W. 3d st. to the Gund-Graham Co., of Freeport, for \$32,632. Other bidders were: James Devine, Dixon, \$33,099, and the Ford Paving Co., Cedar Rapids, Ia., \$39,980.

Galva, Ill.—For paving curb and gutter to P. H. Tiernan, of Macomb, at \$8,730.

Mattoon, Ill.—By Bd. Local Improv. for grading, draining, curbing and paving and for paving Edgar st. to A. C. Loomis, of Mattoon, at \$1.50 per sq. yd. for 11,000 sq. yds. brick pavement and 8,700 ft. concrete curb and gutter, 50 cts.; and for paving 16th st. to Thornton & Michael, of Mattoon, at \$1.50 per sq. yd. for 10,374 sq. yds. brick pavement, and 50 cts. per lin. ft. of 6,960 lin. ft. concrete curb and gutter.

Rock Island, Ill.—By Board of Local Improvement for paving 14th st. with asphalt to McCarthy Improvement Co., of Davenport, Ia., at \$2 per sq. yd., 63 cts. for curb and gutter and \$300 for catch basins.

Jerseyville, Ind.—By Bd. of Local Improv. contract for paving North and South sts. to Hanes & Son for \$19,000.

Muncie, Ind.—William Birch has been awarded contracts for public improvements as follows: For paving of roadway of Ohio avenue, from Main street to Washington street, at his bid of \$1.75 per square yard for Terre Haute brick, with cement curb and gutter at forty-four and three-fourths cents per lineal foot; for construction of cement sidewalk on Monroe street, from Charles street south in various portions, at his bid of fifty-three and one-half cents per lineal foot; for cement sidewalk on east side of Plum street, from Jackson

street south to first alley at bid of fifty-four and one-half cents per lineal foot; for construction of cement sidewalk on each side of North street, from Walnut street to Madison street, at his bid of forty-four and three-fourths cents per lineal foot.

William Torrence and Company has been awarded contract for construction of paved alley, between Jackson street to Madison street, and Elm street to Madison street. Torrence Company, William Birch and George T. Miller all submitted bid of \$1.60 per lineal foot.

Improvement bonds of William Birch have been approved by special committee as follows: For construction of cement sidewalk on the north side of Eighth street, from Macedonia avenue to Beason street, in sum of \$951.08; also for construction of cement sidewalk on each side of Main street in various portions, in sum of \$1,356.85; also for construction of cement sidewalk on the north side of Jackson street, from High street to Franklin street, on east side of Penn street, from Willard street to First street, and for cement sidewalk and curb and gutter in Race street from Jefferson street to Elm street, in sum of \$1,217.42; also for construction of a cement sidewalk on each side of Wolf street, from Willard street to Kirby avenue, in sum of \$962.

Alton, Ill.—By city contract for paving Bostwick st. to David Ryan, of Alton, at \$1.43 per sq. yd.

Louisville, Ky.—By County Commissioners contract to M. F. O'Neil for Peter Eberle gravel road at \$14,640.

Louisville, Ky.—Contract for original construction of Standard St., from 18th to 25th Sts., with asphalt, at cost of \$16,000, has been awarded to Louisville Asphalt Co. by Board of Public Works.

New Albany, Ky.—W. C. Dorsey of Terre Haute has been awarded contract for improvement of East 8th St., New Albany, from Spring to Beeler, by Board of Public Works. His bid was \$3.24 a foot for that part of street from Culbertson Ave. to Beeler St., and \$3.45 for that part from Culbertson Ave. to Spring St. Specifications provide for sarco macadam roadway with granitoid sidewalk and grass plat on each side of street.

Elkton, Md.—To Allen Construction Co. of New Jersey contract to build 4.6 miles of macadam road between Elkton and Chesapeake City for \$47,560.95.

Towson, Md.—By County Commissioners at Towson for constructing section of State Aid Highway in this county, along Falls road, between Beaver Dam Run north, to J. Frank Parks, of Towson, at \$7,381.

Brookline, Mass.—For grading of Eliot street to James Driscoll & Son Company, at \$7,780.

Marblehead, Mass.—For construction of Locust and Phillips streets to John Cudihy, at \$3,097.

Holland, Mich.—By Common Council contract for paving brick to be used on East Eight street to Bessemer Company for \$22.25 a thousand.

Mankato, Minn.—For constructing State Rural Highway No. 1, to Thos. Brogan, of St. Peter, at \$21,047.

Cranford, N. J.—Contracts for improvement of Union ave. and Eastman st. have been awarded to Weldon Contracting Co., of Rahway, lowest bidder. Firm bid \$1,551.40 for Union ave. work and \$556.50 for Eastman st. Other bids received were as follows: Eastman st., Winans Co., \$1,692.60; Humphrey & Bentley, \$1,688.60; Union ave., Humphrey & Bentley, \$571; Winans Co., \$630. Bids for the improvement of Hamilton ave. and Sylvester st. were as follows: Winans Co., \$3,272; Humphrey & Bentley, \$2,793, and Weldon Contracting Co., \$2,887.25.

Hoboken, N. J.—A three-year paving repair contract has been awarded the Uvalde Asphalt Paving Co., 1 Broadway, New York City, providing for the repair of asphalt at \$1.75 per square yard. Belgian block pavements will be repaired at the rate of \$2.75, according to the terms of contract.

South Amboy, N. J.—For Portia st. improvement to John Quinland at 35 cts. per cu. yd.

Trenton, N. J.—According to present indications, the Newton Paving Co. will receive contract for paving East State st. between Canal and North Clinton ave.; Charles A. Reid & Co. will receive contract for West State st. between Willow and Calhoun sts., and for repair of certain sections of Pennington ave. between Warren and Frazier, and for the westerly side of South Broad st. between Greenwood ave. and the canal; and McGovern Contracting Co. will re-

ceive contract for East Front st. between Broad and Montgomery. Newton Paving Co.'s bid for East State st. work with Bermudez asphalt with a one-year guarantee is \$2,632.50, while McGovern's bid on the same work with the same material and guarantee was \$2,652. Charles A. Reid & Co.'s bid of \$7,440 for paving West State st. with Jamestown vitrified block on the existing concrete base will probably be accepted. The Ginder Construction Co. bid \$7,347 for Saxton vitrified block, but proposal was not signed or sworn to. The next lowest bid was for \$7,626. Reid Co. will probably also get contract on its bid of \$1,980 for Pennington ave. paving with Pennsylvania fire clay vitrified brick. Bid was \$210 lower than that of McGovern Co., nearest competitor. The Reid Co. was likewise lowest bidder that complied with specifications on South Broad st. job. Several of bidders figure on shale instead of vitrified fire clay block as specified. Reid's bid was for \$4,489.55 and he proposes to use "Porter National" block. There seems to be little doubt that the McGovern Construction Co. will get contract for East Front st. work. Its bid of \$3,261.55 on Metropolitan block is low, nearest bid being that of Reid Co. on Jamestown block for \$3,384.96.

Albany, N. Y.—By Bd. of Contract & Supply contract for paving Broadway from Columbia st. to Livingston ave. to Union Paving Co. of Schenectady, at \$45,620, and to P. W. Mulderry of Albany contract for paving Elizabeth st. at \$7,925. Also contract for paving S. Hawk st. with vitrified brick on concrete foundation to J. S. Campion of Albany at \$11,045.

Clean, N. Y.—By city for street paving to M. Applegate Son & Co. at following bid: 7,950 sq. yds. at 43 cts. per sq. yd.; 2,500 sq. yds. at 40 cts., and 813 sq. yds. at 40 cts. Total bid, \$25,710. For curbing bid was 59 cts. per lin. ft. H. E. Bunce, city engineer.

Rochester, N. Y.—Contracts have been let as follows: Travis St. asphalt, to Rochester Vulcanite Pavement Co. for \$1,336.30; North Goodman St. walks, to John Petrossi Co. for \$3,667.50.

Rochester, N. Y.—By Board of Contract and Supply, contract for new bitulithic pavement in Lake Ave., between Lyell and Driving Park Aves., to Rochester Vulcanite Pavement Co. for \$50,388; estimated cost being \$55,000. Company has asked Board's permission to assign work to Warren Brothers Co., of Boston, idea being that Boston company which has patent on bitulithic pavement demanded by taxpayers, will guarantee work to Rochester company, which in turn will guarantee it to city.

Schenectady, N. Y.—By Board of Contract and Supply contract for 15,000 sq. yds. of repair work to J. W. Davitt, the Troy contractor, who recently was awarded the contract for 100,000 sq. yds. of paving. Davitt's price for repairs is \$1.15 per yd.

Troy, N. Y.—By Bd. of Contract and Supply to John H. Gleason of Troy contract for asphalt repairs at \$1.55 a sq. yd.

Utica, N. Y.—To John F. Augar, of this city, contract for construction of reinforced concrete culvert over Ballou Creek in line of proposed extension of parkway. His bid was \$2,873.80. Other bids received by the members of the Board of Contract and Supply were: W. F. Cogley, \$3,605.07; Harry W. Roberts & Co., \$3,732.16; Alfred Mussa, of Frankfort, \$3,700.50, and Frank M. Johnston, \$3,932.75.

Yonkers, N. Y.—To Kearns & Hart for paving Nepperhan Ave. at \$6,811.32.

Bryan, O.—To Ryan & Roach, of Maumee, contract to improve Angola road in Madison Township, at \$15,600.

Columbus, O.—By State Highway Commissioner for grading and paving with brick for heavy traffic, the Akron Canton road. State Highway "F" Pet. No. 495 in Springfield Twp. Length, 10,200 ft., or 1.93 miles, to H. E. Hunt, Jackson, O.; contract price, \$34,300. For grading and paving with bituminous surface treated concrete, the Columbus road, State Highway "D" Pet. No. 466 in Scioto Twp. Length, 5,280 ft., or 1 mile, to W. H. Ringwald & Sons, Chillicothe, O.; contract price, \$9,671.58. For grading and paving with a waterbound macadam having a bituminous surface treatment, the New Lexington and Logan road, State Highway "B" Pet. No. 596 in Pike Twp. Length, 5,280 ft., or 1 mile, to Petrie & Long, Logan, O.; contract price, \$11,300. For grading and paving with brick for heavy traffic, the No. 3 Richmond road, State Highway "D" Pet. No. 374, in Euclid Twp., Cuyahoga Co. Length, 7,000 ft., or 1.33

miles; to Enterprise Const. Co., Cleveland, O.; grading and paving with brick for heavy traffic, the Wadsworth Wooster road, State Highway "B" Pet. No. 548 in Wadsworth Twp. Length, 3,432 ft., or 0.65 miles, to C. J. Chinnock, Warren, O.; contract price, \$9,537.40. For grading and paving with a water bound macadam pavement the Sec. 1 Medina Wooster road, State Highway "C" Pet. No. 546, in Montville Twp. Length, 3,485 ft., or 0.66 miles, to G. S. Melert, Medina, O.; contract price, \$5,200. For grading and paving with waterbound macadam, the Sec. No. 2 Gallion-Mansfield road State Highway "G" Pet. No. 737, Sandusky Twp., Richland Co. Length, 11,485 ft., or 2.21 miles, to Kessner & Mart, Delaware, O.; contract price, \$13,100. James R. Marker, State Highway Comr.

Tiffin, O.—By Service Director John Miller, to George Ehrenfeld, city, for paving as follows: Webster street: grading, 45c.; concrete curb, 28c.; basins, \$34; 10-in. sewer, 58c.; 4-in. tile, 5c.; bituminous and gravel surface, 12c.; concrete paving, 96c. Clinton avenue: grading, 45c.; sandstone curb, 39c.; resetting curb, 18c.; bituminated concrete, \$1.08; inlets, \$14.50; 10-in. pipe, 58c.; tile, 5c.; total of bid, \$1,966.07.

To Louis Shomler, city, for circular street, as follows: excavation, 42; curbing, 38c.; resetting curb, 20c.; crushed stone foundation, \$1.40; sand cushion, cubic yard, \$1.30; sand filling, 5c.; basins, \$40; 10-in. pipe, 45c.; Athens block, 88c.; marginal cost, 24c.; tile, 5c.; total bid, \$36,591.

Warren, O.—By Dir. Pub. Service, for repaving North Park avenue, 8,400 sq. yds., to Fred L. Geiger, 7 School street, at \$13,042. Metropolitan brick to be used.

Portland, Ore.—By City Council to Pacific Bridge Company contract for bitulithic on E. Lincoln street, at \$11,000; to Cochran-Nutting & Co., paving 42d street, at \$17,654, and to Warren Construction Company, Journal Building, gravel bitulithic on Rodney avenue, at \$36,671.

Hazleton, Pa.—To Freeland Construction Co. for Section No. 2 of Fairview-Freeland county road.

Williamsport, Pa.—Joint highway committee of councils has opened bids for paving of Hepburn st. There was only one bid for this paving from the Pennsylvania railroad to Bridge street, that of Busch & Stewart for \$2.04 per sq. yd. Committee will recommend the bid of Busch & Stewart to councils.

Wilkes-Barre, Pa.—Three contractors submitted bids for building section No. 2 of Hazleton county road, from Rita to Tunnell. The Freeland Construction Company submitted lowest bid and will be given contract, commissioners to select material to be used. Stretch of road to be built is 5.5 miles in length and extends between villages of Rita and Tunnell. Contractor E. H. Post was awarded a contract by previous commissioners, but gave it up. Several bids on different grades of work submitted by Freeland Construction Co. range from \$61,000 to \$69,986. Highest bid submitted was by B. G. Coon Construction Co., \$81,232. Other firm bidding was the Herrick Construction Company. Bids submitted were as follows:

Using binder residuum bituminous material "A" and to accept in full compensation therefor sum of: Approved native stone bottom and trap rock top course—Freeland Construction Co., \$68,340.80; Herrick Construction Co., \$75,861.71; B. G. Coon Construction Co., \$78,955.80. Approved native stone bottom and approved White Haven red stone top course—Freeland Construction Co., \$64,806.80; Herrick Construction Co., \$71,130.27; B. G. Coon Construction Co., \$72,773.40. Mixed approved native stone top course—Freeland Construction Co., \$61,000. Using for binder fluxed Bermudez asphalt bituminous material "A" containing not over 30 per cent. flux, and to accept in full compensation therefor the sum of: Approved native stone bottom and trap rock, top course—Freeland Construction Co., \$69,986.40; Herrick Construction Co., \$78,179.15; B. G. Coon Construction Co., \$81,232.60. Approved native stone bottom and approved White Haven red stone, top course—Freeland Construction Co., \$73,447.71; B. G. Coon Construction Co., \$74,899.65. Mixed approved native stone, top course—Freeland Construction Co., \$64,411. Using for binder fluxed Trinidad asphalt bituminous material "A" containing not over 30 per cent. flux and to accept in full compensation: Approved native stone bottom and trap rock, top course—Freeland Construction Co., \$69,986.40;

Herrick Construction Co., \$78,565.39; B. G. Coon Construction Co., \$81,282.60. Approved native stone bottom and approved White Haven red stone, top course—Freeland Construction Co., \$66,025; Herrick Construction Co., \$73,833.95; B. G. Coons Construction Co., \$74,899.65. Mixed approved native stone top course—Freeland Construction Co., \$64,411. Using for binder Texaco road asphalt: Approved native stone bottom and trap rock, top course—Freeland Construction Co., \$64,386.40; Herrick Construction Co., \$75,861.71; B. G. Coon Construction Co., \$80,182. Approved native stone bottom and approved White Haven red stone, top course—Freeland Construction Co., \$62,069.02; Herrick Construction Co., \$71,130.27; B. G. Coon Construction Co., \$73,899. Mixed approved native stone, top course—Freeland Construction Co., \$59,455. Concrete base and Texaco wearing surface—Freeland Construction Co., \$68,340.80; Herrick Construction Co., \$75,089.23.

Providence, R. I.—Contracts for grading, macadamizing and laying concrete sidewalks upon and about tract of land on Promanade st. have been awarded as follows: Contract for laying 1,500 sq. yds. of tar concrete pavement, 7 ft. wide, was let to United States Concrete Roofing Co., and Joseph McCormick of East Providence was given grading contract.

Houston, Tex.—To Eureka Constr. Co., contract to pave Capitol Ave. at \$9,847.

Danville, Va.—To J. J. Battersbell, of Virginia, for improving nearly 50 miles of roads at \$88,700.

Davenport, Wash.—To Spokane Asphalt Macadam Co., of Spokane, contract to construct Davenport-Harrington macadam highway No. 2, a distance of about 7 miles, at \$37,700. The Inland Portland Cement Co., of Spokane has secured contract to furnish cement needed for concrete work.

Seattle, Wash.—To F. McClellan, contract to pave Bayview St., at \$86,524, and Rufus Buck, contract to grade and curb 1st Ave. at \$45,291.

Seattle, Wash.—By Board of Public Works for plankling Connecticut street to Swanson & Bjock Bros. at \$2,378.75, and for paving of Pine street to A. J. Baumgartner, at \$56,168.14.

Seattle, Wash.—Lowest bidder for grading of Division avenue is W. F. Manney & Co., at \$25,031.70. Other bidders as follows: Henry Brice, \$26,983.20; Holt & Jeffery, \$27,085.10; J. H. Cullen & Co., \$29,080.80; Andrew Peterson, \$31,385.70.

Tacoma, Wash.—County commissioners have awarded contract for construction of Pierce county permanent highway No. 3, from Tacoma to Spanaway, for \$43,843. Washington Paving Company, of Tacoma, was low bidder, other tenders being up to \$59,961. Bids on work were submitted as follows:

Washington Paving Company, \$43,843; George P. Wright, \$49,545; McHugh Construction Company, \$51,160; Hans Pederson, \$51,701; Joseph Warter, Sr., \$52,633; Inland Empire Hassam Paving Company, \$56,900; Dr. H. Traphagen, \$58,000, and Charles G. Schaeffer, \$59,961.

SEWERAGE

Sacramento, Cal.—People have voted favorably on \$1,032,000 bond issue for construction of sewer and drainage system.

San Francisco, Cal.—City has sold bonds to amount of \$400,000 for sewers.

Woodland, Cal.—Election will shortly be held for voting on bond issue for extension of sewer system.

Dunnellton, Fla.—Bond issue of \$50,000 has been voted for complete sewerage system and other improvements.

South Bend, Ind.—Resolutions calling for construction of local sewers on eight streets on west side have been approved by board of public works. Sewers will be placed on following streets: Grant, Lincoln, Pulaski, Kosciusko, Huron, Union, Jackson and Poland. All will empty into Sample street trunk sewer.

Lexington, Ky.—Ordinance ordering construction of sanitary sewer on Fifth street, from Maple avenue to Walnut street, has been passed.

Kalamazoo, Mich.—More miles of sewer pipe will be laid in Kalamazoo this year than ever before according to estimates on file in city engineer's office. Sum of \$25,000 will be spent for that purpose.

Monroe City, Mo.—At special election held Monroe City has voted to issue \$78,000 bonds for installing sewerage and waterworks.

Dover, N. J.—After hearing Dover's demands in reference to construction and maintenance of trunk sewer and disposal

plant, representatives of Street and Water Board of Jersey City have agreed to recommend their acceptance to Board of Finance of city.

Hammonton, N. J.—Bonds have been voted for construction of up-to-date sewer system and disposal plant. Estimated cost, between \$80,000 and \$90,000.

Albany, N. Y.—Senate has passed Senator J. Henry Walters' bill providing for storm water sewers in First and Second wards, to be constructed under direction of Syracuse Intercepting Sewer Board. Measure is an amendment to the Syracuse Intercepting Sewer Board act, and authorizes issue of bonds to amount of \$100,000 to build the sewers.

Oswego, N. Y.—Bids on construction of trunk and lateral sewers and sewage disposal plant under \$200,000 bond issue will be opened by Commissioner of Public Works John Smith. If bids are satisfactory contracts will at that time be awarded. Work consists of construction of approximately 17,300 ft. of sanitary sewer from 8 to 36 ins. in diameter and 11,700 ft. of storm sewer from 10 to 72 ins. in diameter. A sewage disposal plant costing upward of \$15,000 will be erected on the West Side.

Newburgh, N. Y.—Construction of sewer in Washington st., from Liberty to South Water st., has been recommended.

Schenectady, N. Y.—Ordinance will be considered providing for construction of proposed trunk sewer.

Schenectady, N. Y.—Bond issue for \$375,000 for construction of sewage system has been introduced.

Eugene, Ore.—Ordinance for construction of sewer on East 8th ave. from the Mill Race to the railroad as preliminary to paving that street has been passed.

Sioux Falls, S. D.—Bids will shortly be advertised for construction of sewers in various streets.

Sioux Falls, S. D.—Resolution has been adopted declaring it necessary to construct lateral sanitary sewer from viaduct west to Western ave. on 12th st.

North Yakima, Wash.—City Commissioners have decided to call election to decide bond issue of \$300,000 for sewer extension June 1.

Seattle, Wash.—Plans have been completed for sewers in Palatine avenue and other streets to cost \$102,300.

CONTRACTS AWARDED.

San Diego, Cal.—To Contracting & Construction Corp., at \$37,933, for construction of sewer system in Balboa Park for Panama-California Exposition.

Waterbury, Conn.—Sewer contracts for Rose, Pine, Willow, Beacon, North Beacon and Fleet streets and passway from Willow street to Flske street have all been awarded to Antonio Lambo for \$5,161.21. Contract for sewer on Plank road, at cost of \$2,378.78, has also been awarded to Lambo. Contract for construction of a storm water conduit on corner of Bank and Grand streets has been awarded to Frank Di Orto; his bid being \$2,958.10.

Washington, D. C.—By District Commissioners contract to George Hynan, foot of S. Capital street, at \$19,302, for the Filmore sewer.

Minooka, Ill.—To Embankment Co., Joliet, Ill., contract, at \$11,108.52, for construction of sewer system for Minooka. Jas. S. Gwynne is village clerk.

Burlington, Ia.—Lowest bidder for construction of Graham st. sewer was Leidel Construction Co., at \$1.30; also for Garfield ave. sewer at \$1.35, and for Harrison ave. sewer, Brogan & Pitz were lowest bidders, at \$1.37.

Kennebunk, Me.—By Selectmen and Sewer Committee, for building of sewer, to Lurello & Perfano of Portland, who were lowest bidders at price of \$15,053.10. There was wide range in price between bids, the highest being \$25,478.

Amesbury, Mass.—Contract for building system of sewers that is to be put in this summer, has been awarded to C. E. Trumbull & Co., of Boston, for \$37,212.90.

Westfield, Mass.—For furnishing about 12,000 lin. ft. 6 to 18-in. pipe to Warner-Miller Co., of New Haven, Conn.

Springfield, Mo.—To Plummer-Adams Construction Co., Union National Bank Building, contracts, at total of \$23,000, for laying of sewer extensions in Sub-dist. No. 1 of Dist. No. 8 and Sub-dist. No. 2 of Dist. No. 8. J. H. Langston, city clerk; C. E. Phillips is city engineer.

Newark, N. J.—Bids have been opened for construction of three sub-divisions of the Passaic Valley trunk sewer. The three parts make up what is known as Section C. Combined, they call for building of 4,700 ft. of sewer. Pethick Bros.

& Co., New York, were successful bidders for all three sub-divisions. Their bid for southerly sub-division was \$150,300; for northerly sub-division was \$149,200, and for central portion of section, \$129,200. The southerly section extends from a point on Doremus avenue, about 1,850 feet northerly from Avenue R, thence northerly through Doremus avenue and Hamburg place, to point about 300 feet south of grade crossing of the Central Railroad of New Jersey, total distance of about 1,700 feet. Northerly sub-division extends from a point in Hamburg place near Avenue L, thence northerly through Hamburg place to point near Berlin and Jabez streets, total distance of 1,600 feet. Central portion extends from point in Hamburg place, about 300 feet south of the grade crossing of the Central Railroad of New Jersey, thence northerly through Hamburg place to point near Avenue L, total distance of 1,400 feet.

Newark, N. J.—By Passaic Valley Sewerage Comrs. contract for construction of Sect. 11 of main intercepting sewer in town of Nutley to Harrison & Craig, of Newark, at \$237,300.

Oneida, N. Y.—By Board of Public Works for construction of sewers on two streets. There were two bidders on each contract. Bids on Cedar St. sewer were: Conroy & Nixdorf, \$1,641.50; Nixdorf & Besenza, \$1,533.60. For Mott St. sewer, bids were: Conroy & Nixdorf, \$1,247.80; Nixdorf & Besenza, \$1,163.40. Both contracts were awarded to Nixdorf & Besenza.

Valley City, N. D.—For constructing trunk and intercepting sewer system to Haggart Construction Company, of Fargo, at \$61,374.

Barberton, O.—By Board of Control to John J. O'Neil for construction of storm sewer in district No. 3, comprising West Barberton.

Wooster, O.—By City to Haskell & Battles, of Painesville contract for constructing sanitary sewer at \$17,559.

Williamsport, Pa.—Bids have been asked for on seven sewers and there were four bids on all of them, including Busch & Stewart, Charles Dugan, James McCadden and J. W. Shadle. Committee has recommended bids of Mr. Dugan for six of sewers and bid of Busch & Stewart for one. Following are bids and bidders on sewers as advertised: Erie ave. and Beeber st. house sewer, awarded to Charles Dugan; Busch & Stewart, 1,787; Charles Dugan, \$1,778.50; J. W. Shadle, \$1,991.92; James McCadden, \$1,389.30. Eighth ave. house sewer, was awarded to Charles Dugan on his bid of \$283. Other bids were Busch & Stewart, \$426; Shadle, \$336.30; McCadden, \$256.50. Spring Gut sewer was awarded to Charles Dugan he being lowest bidder. Mulberry st. storm sewer was awarded to Busch & Stewart on their bid of \$310. Other bids were Charles Dugan, \$310.80; Joseph McCadden, 236.90. Chestnut st. house sewer was awarded to Charles Dugan on his bid of \$215. The other bids were Busch & Stewart, \$219.40; Shadle, \$224.60; McCadden, \$201. Park ave. house sewer was awarded to Charles Dugan, his bid being \$245.12. The other bids were: Busch & Stewart, \$371.64; Shadle, \$279.70; McCadden, 214.10. Linn st. house sewer to Charles Dugan bidding \$285.50. Others bid: Busch & Stewart, \$374.70; Shadle, \$311.50; McCadden, \$268.25.

El Paso, Tex.—By City Council contract to Concrete Products Co., of Chicago, Ill., for construction of about 15,000 ft. cement pipe sewers, to cost \$22,250.

Aberdeen, Wash.—To De Camp & Chetham, of Spokane, contract for trunk sewer at \$25,988 and \$13,246 lateral sewer.

Fond du Lac, Wis.—By Common Council contract for constructing sewers with pumping station and sewage treatment plant to include a pump pit with motor-driven centrifugal pumps, settling tanks and hypochlorite treating plant; 8,410 ft. 38 to 15-in. tile pipe sewer, 23 manholes and a river crossing; also another 5,375 ft. 18 to 12-in. sewer, 17 manholes and a river crossing, to the E. R. Harding Co., of Racine, at \$65,008. J. F. Hohense is city clerk.

WATER SUPPLY

Anniston, Ala.—Water mains will be extended shortly.

Madera, Cal.—City may construct municipal waterworks.

Sacramento, Cal.—People have voted favorably on \$1,329,600 bond issue for enlargement and extension of water mains and construction of additional water mains.

Stockton, Cal.—Bonds in sum of \$200,000 will be issued for a high-pressure fire protection system. W. G. Hunter is City Engr.

Woodland, Cal.—It has been decided by City Board of Trustees that Woodland shall have bond election to provide funds for enlarging and extending water system, sewer system and fire-fighting facilities.

Palisades, Colo.—Question of constructing water-works is being discussed.

Washington, D. C.—F. J. Yanes, Assistant Director of the Pan American Union wishes literature concerning rapid sand filters, suitable for municipal filtration plants, also names of sanitary engineers who could construct slow sand filters.

Dunnellton, Fla.—Bond issue of \$50,000 has been voted for purchase of water-works and electric light plant and other improvements.

Zebulon, Ga.—Bond issue of \$10,000 has been authorized for water-works.

Riverside, Ill.—All bids received for pumping station building have been rejected, and new bids asked for.

Carson, Ia.—Election will be held May 13 for voting on installation of water-works system.

Shreveport, La.—Election will be held during summer for voting on purchase of water-works.

Williamsport, Md.—Plans are being prepared for water-works system.

Waltham, Mass.—Setting of 300 meters, laying of 7,500 ft. of 10-in. and 6-in. pipe, and placing of additional hydrants, have been recommended by Supt. Daniel J. Griffin in his annual report.

St. Paul, Minn.—City Comptroller Handy has been requested to advertise for \$150,000 of water bonds and \$25,000 of playgrounds bonds. Bids will be opened May 12.

Jackson, Miss.—Election will be held June 7 for voting on \$250,000 bond issue for municipal improvements, including filtration plant.

Buhl, Minn.—Citizens have voted \$20,000 bond issue for improving water, light and pumping station.

Lake City, Minn.—Citizens have voted \$15,000 bond issue to extend water mains and build concrete reservoir.

Monroe City, Mo.—At special election held Monroe City has voted to issue \$78,000 bonds for purpose of installing waterworks and sewerage.

Twin Bridges, Mont.—At special meeting of council ordinance was passed authorizing calling of special election on May 24, on question of issuing bonds to extent of \$17,000 for installation of waterworks system.

Atlantic City, N. J.—Plan to build \$100,000 dam around southern end of Doughty road, main watershed for city of Absecon, is being considered by city commissioners.

Clinton, N. Y.—At joint meeting of board of trustees and water commission water commissioners requested trustees to call special election for purpose of voting on question of appropriating sum not to exceed \$5,000 to purchase additional water rights. It was decided to call election for May 12.

Jamestown, N. Y.—Citizens will issue \$150,000 bonds for new reservoir and other improvements.

La Salle, N. Y.—Village board of La Salle on request of Board of Water Commissioners has called special tax election for purpose of voting on proposition to raise \$15,000 by sale of bonds, this amount to be expended on further extensions of water mains.

Niagara Falls, N. Y.—Taxpayers of La Salle have voted by overwhelming majority in favor of expending \$20,000 for village improvements this spring. Sum of \$15,000 will be used for extension of water mains in outlying districts.

Schenectady, N. Y.—Proposed ordinance for improvement of water system has been presented, calling for expenditure of \$280,000 from water funds for new 36-inch main to connect city with Rotterdam pumps, two-service zone and betterments at pumping station.

Troy, N. Y.—Bill authorizing Troy to issue \$205,000 bonds for Water Works Department has been signed.

Belfield, N. D.—Installation of water-works system has been authorized; estimated cost, \$10,000.

Barberton, O.—Special election will be held on May 20 on question if bonds of city shall be issued in amount of \$25,000 to extend, enlarge, improve and repair water-works.

Howe, Okla.—Council is considering establishment of waterworks system.

Amity, Ore.—Engineer Louis C. Kelsey, Selling Bldg., Portland, has been engaged by city to design and supervise construction of a deep-well pumping plant and waterworks system, for which it is proposed to issue bonds.

Pettaconsett, R. I.—Board of Contract and Supply has voted to ask for bids on new 30,000,000 gallon daily capacity water pump for Pettaconsett pumping station. Three types of pumps are named in proposals, a steam turbine, a vertical triple-expansion steam and an electric centrifugal.

Volin, S. D.—In accordance with result of recent election, when bonds in sum of \$8,450 were voted for construction of municipal waterworks system, steps now are being taken to have system installed.

Webster, S. D.—New pump will be installed at waterworks.

Henderson, Tenn.—City has voted on question of installing a waterworks system, with the following results: 87 in favor and 81 against proposition.

Salt Lake City, Utah.—Appropriation of \$2,880 has been made by city commission to defray cost of lowering water mains in curb and gutter extension No. 26.

Olympia, Wash.—According to plans outlined before city council at a secret meeting last night, Mayor George A. Mottman desires to establish as early a date as possible a \$100,000 gravity water system. If established, it will be municipally owned. The supply will be Summit Lake, nearly 20 miles up in mountains.

Puyallup, Wash.—Ordinance has been passed by Puyallup city council, deciding to submit to vote proposed bond issue of \$100,000 to be used to install new main from Salmon springs to city of Puyallup.

Milwaukee, Wis.—Lowest bid received for \$450,000 intake tunnel for water department was that of Joseph Hanreddy.

CONTRACTS AWARDED.

Montrose, Colo.—For constructing 6.2 miles Sellig Extension Canal, 3.4 miles Peach Valley Lateral Uncompahgre project, Schedules 3 to 14. Sayler Constr. Co., Lamar, Colo. This company bid for all sections a total of \$72,929; it bid for canal excav., Class I, per cu. yd., 22 cts. and 18 cts.; canal excav., Class II, per cu. yd., 47 cts. and 45 cts.; canal excav., Class III, per cu. yd., 80 cts., 60 cts. and 40 cts.; canal excav., Class IV, per cu. yd., 30 cts.; overhaul, per cu. yd., 2 cts.; tunnel excav., Class I, per lin. ft., \$7.25; tunnel excav., Class II, per lin. ft., \$9.50; timbering per M ft., \$15. Other bidders were as follows: Maney Bros. Co., of Boise, Idaho, bid on all sections a total of \$101,000; they bid for canal excav., Class I, per cu. yd., 50 cts.; canal excav., Class II, per cu. yd., 50 cts.; canal excav., Class III, per cu. yd., 75 cts.; canal excav., Class IV, per cu. yd., 75 cts.; tunnel excav., Class I, per lin. ft., \$8; tunnel excav., Class II, per lin. ft., \$9; timbering, per M ft., \$15; overhaul per cu. yd., 2 cts. Midwest Eng. Co., Omaha, Neb., bid only on Schedules 4, 5, 6, 7 and 11; Canal excav., Class I, per cu. yd., 26 cts.; canal excav., Class II, per cu. yd., 60 cts.; canal excav., Class III, per cu. yd., 85 cts.; canal excav., Class IV, per cu. yd., 85 cts.; overhaul, per cu. yd., 2 cts.; tunnel excav., Class I, per lin. ft., \$8; tunnel excav., Class II, per lin. ft., \$8; timber, per M ft., \$20. They bid for overhaul only on all the other sections 2 cts. per cu. yd. Chas. Palmgren, Montrose, bid only on Schedules 4, 6 and 11; Canal excav., Class I, per cu. yd., 25 cts.; canal excav., Class II, per cu. yd., 45 cts.; canal excav., Class III, per cu. yd., 70 cts.; canal excav., Class IV, per cu. yd., \$1; overhaul, per cu. yd., 2 cts.; tunnel excav., Class I, per cu. yd., \$7.25; tunnel excav., Class II, per cu. yd., \$8; timber, per M ft., \$13.50. It bid for overhaul on all the other sections 2 cts. per cu. yd.

Fountain, Colo.—To J. R. Gordon & Son, of Pueblo, contract for constructing waterworks at about \$45,000.

Anna, Ill.—By State Bd. of Administration contract for waterworks at Anna State Hospital for Insane to Public Service Constr. Co. of Omaha, Neb., at \$89,323. Contract for filter plant to Roberts Filter Mfg. Co. of Darby, Pa. Engr. is Dabney H. Maury, Monadnock Bldg., Chicago.

Cuthrie Center, Ia.—For constructing waterworks to C. W. Roland Co., of Des Moines, at \$7,721. Other bidders: W. D. Lovell, Minneapolis, Minn., \$7,900; Des Moines Bridge & Iron Works, Des Moines, \$7,950, and Lana Constr. Co., \$8,500.

Jewell, Kans.—To T. C. Brooks & Son, Jackson, Mich., contract, at \$35,000, for construction of water-works for Jewell City. E. E. Harper is city engineer, Grand Avenue Temple, Kansas City, Mo.

Boston, Mass.—By Comr. Pub. Wks., for laying about 28,000 lin. ft. 4 to 16 in. water pipe in various streets in West Roxbury, Dorchester and Hyde Park, to M. De Sisto & Co., at \$23,310. Other bidders: A. Williams & Co., \$26,900; John T. Shea, Jr., \$27,044; J. H. Ferguson, \$29,160; Thomas Burke, \$29,375; R. Cartullo, \$30,945; Antony Cefalo, \$43,120.

Baltimore, Md.—Bids have been opened by Board of Awards for Baltimore's \$1,000,000 filtration plant. The Keystone State Construction Co., of Philadelphia, is, apparently, the lowest bidder.

Baltimore, Md.—Board of Awards has awarded to Thomas Muller contract for Road No. 1 in Loch Raven water supply district. His bid was \$49,149.50.

Ralston, Neb.—Contracts have been awarded as follows: To Alamo Eng. & Supply Co., of Omaha, for pump-house, pump and motor, \$3,235, and to Drake, Williams & Mount, of Omaha, for stand-pipe, \$2,750.

Schenectady, N. Y.—Bids have been opened for about 600 tons of cast-iron water pipe and fittings. Lowest bidder was R. D. Wood & Co., of Philadelphia, who was awarded contract for \$7,468.45. Other bidders were: John Fox & Co., New York, \$7,872.39; Charles Miller & Sons, Utica, \$7,639.22; Donaldson Iron Co., Emans, Pa., \$8,050.70.

Troy, N. Y.—Bids have been opened by Board of Contract and Supply for furnishing material and constructing reinforced concrete overflow conduit for Oakwood reservoir, as follows: E. L. Grimes Co., \$38,367; Whiting-Turner Co., Baltimore, Md., \$51,888; Martin Murray Co., \$44,677; Leary & Morrison Co., Fairport, \$49,652; Kellar & Shafer Co., Schenectady, \$50,866; Kennedy & Hamilton Co., Utica, \$53,081; Concrete & Foundation Co., New York City, \$54,430; Henry Golden, Troy, \$54,594; Edw. Walsh, Troy, \$57,706; George Broderick, Troy, \$63,191; Rob Roy Constr. Co., Albany, \$66,828. Details of lowest bidder is as follows: E. L. Grimes Co., Troy, 7,450 cu. yds. earth excavation, 8 ft. deep, 60c.; 4,300 cu. yds. earth excavation, 8 to 14 ft. deep, 80c.; 1,100 cu. yds. earth excavation, 14 to 20 ft. deep, \$1; 50 cu. yds. rock excavation, 8 ft. deep, 1.50; 100 cu. yds. rock excavation, 8 to 14 ft. deep, \$2; 100 cu. yds. rock excavation, 14 to 20 ft. deep, \$2; 8 man-holes each, \$30; 2,661 cu. yds. concrete, 1-2-4, \$9; 94,200 lbs. 5/8-in. R bars, 4c.; 24,000 lbs. 10-in. I-beams, 3c.; 3,100 lbs. 3-in. sq. mesh, 5c.; connecting 36.24x40-in. drain, \$50.

Phoenixville, Pa.—For equipment of 3,000,000-gal. filter plant to Roberts Filter Mfg. Co., of Philadelphia, Pa. Concrete work and buildings will be done on force account and work will be begun June 1. Chester & Fleming, of Pittsburgh, are in charge of entire work.

Seattle, Wash.—Lowest bidder for laying of water-mains on Bover avenue is Nels Erickson, at \$22,230.17. Other bidders as follows: T. Ryan, \$23,608.20; Ferguson-Coit Co., \$22,872.80; Washington Const. Co., \$22,680.00; Dicken & Rightmire, \$22,261.32; and T. Ryan is lowest bidder for laying water-mains on Sixth avenue south.

Milwaukee, Wis.—By department of public works for construction of \$450,000 intake tunnel to Joseph Hanreddy, 127 N. Dearborn street, Chicago.

LIGHTING AND POWER

Sacramento, Cal.—People have voted favorably on \$113,600 bond issue for construction of an electric light distributing system.

Dunnellton, Fla.—Bond issue of \$50,000 has been voted for purchase of electric light plant and water-works and other improvements.

St. Petersburg, Fla.—City Council has passed resolution providing for submitting question of whether or not people wish municipal gas plant.

Tallahassee, Fla.—Citizens have voted to issue \$9,000 bonds for electric light improvements.

Goshen, Ind.—City Council of Goshen has contracted with Burns-McDonald Engineering Company, of St. Louis, to draft plans and supervise rehabilitation of municipal lighting system. Work will begin this spring. Plant is valued at \$300,000.

Lagrange, Ind.—Ornamental lighting is to be installed on Main St.

Waynetown, Ind.—Citizens are said to be planning to construct electric light plant.

Great Bend, Kan.—City Council has passed ordinance providing for gas plant to be installed by Eaken & Donelan, of Manhattan, Kan. Ordinance provides that supply of gas shall be maintained at all times that will show 18 candle power light and produce 575 British Thermal heat units per 1,000 cubic feet. Rate of \$1.50 per thousand is allowed up to 3,000 cubic feet. Rate over 3,000 is \$1.30 per thousand.

Lexington, Ky.—Ordinance granting to Lexington Utilities Company a twenty-year electric light franchise and fixing rates which company will be allowed to charge consumers during that period, has been passed by Board of City Commissioners.

Hinckley, Minn.—Special election held here to learn wishes of people upon proposition of condemning and taking over by purchase electric lighting plant resulted favorably.

Niagara Falls, N. Y.—Establishment of municipal electric system is being recommended.

Elgin, N. D.—Question of constructing electric light plant is being discussed.

Barberton, O.—Special election will be held in Barberton on the 20th day of May, at which time voters will determine whether they want to build proposed electric light plant.

Findlay, O.—Report has been submitted by J. W. S. Riegle to Council for an electric light plant. Estimated cost, \$42,000.

Chambersburg, Pa.—City Council has approved ordinance for improvement of electric light plant at cost of \$30,000.

Florence, S. D.—Movement is under way to install up-to-date light and power system.

Hudson, S. D.—Installation of electric light system has been authorized.

Paris, Tenn.—Contract will shortly be let for improvements to the city water and light plant. M. W. Younken, Supt.

Nephel, Utah.—New water wheel will be installed at municipal electric light plant.

Hampton, Va.—Establishment of municipal lighting plant between Hampton and Phoebus is being discussed.

CONTRACT AWARDED.

Rochester, N. Y.—To Rochester Ry. & Light Co., contract for lighting municipal building in city.

FIRE EQUIPMENT

Berkeley, Cal.—Bond issue of \$95,000 has been voted for improvements to fire department.

Sacramento, Cal.—Resolution has been adopted providing for purchase of 1,000 ft. of fire hose for Oak Park.

Woodland, Cal.—Election will shortly be held for voting on bond issue for additional fire apparatus.

Manchester, Conn.—Appropriation will probably be made in August for purchase of fire-fighting automobile for Hose and Ladder Company No. 4.

Washington, D. C.—Report from American consular officer in Far East states that local municipal council has decided to purchase five fire engines and other apparatus, expenditure to be about \$34,000. It is proposed to have new engines type suitable for handling by utilizing horses and a number of trained firemen. Catalogues and letters in English should be addressed to official named in report. No. 10857, Bureau of Manufactures.

Indianapolis, Ind.—Bond issue of \$75,000 for erection of fire headquarters building and of municipal garage has been sold by city. Plans for garage have not been completed.

Des Moines, Ia.—Complete motorization of Des Moines fire department is plan of City Council. Council has passed final resolution granting Councilman Van Liew privilege to purchase about \$20,000 worth of new motor driven apparatus.

Topeka, Kan.—Purchase of steamer and aerial truck has been recommended by Chief Wilmarth.

Amesbury, Mass.—It has been voted to purchase automobile fire truck at expense not to exceed \$5,750.

Holyoke, Mass.—Proposition for installing two combination automobile chemical trucks and automobile tractor in fire department is being discussed.

Lee, Mass.—Purchase of new equipment is under consideration.

Grand Rapids, Mich.—Fire commissioners are asking \$76,000 to make added fire fighting improvements in fire department.

St. Joseph, Mo.—Fire Chief Kane has recommended that half of city fire department be equipped with motor cars.

St. Joseph, Mo.—Bond issue for purchase of auto fire equipment is recommended by Mayor Charles A. Pfeiffer.

Atlantic City, N. J.—Bids will shortly be asked for new fire apparatus for new station at Atlantic and California aves.

New Providence, N. J.—Hose Company No. 1, which is official fire department of New Providence Borough, has decided to purchase auto-bus of defunct Passaic Valley Transportation Co., and to convert it into combination hose and chemical truck.

Plainfield, N. J.—Purchase of motor pumping engine is authorized. Bids may shortly be asked.

Roselle, N. J.—Measure providing for \$10,000 bond issue for purchase of new motor fire apparatus has been passed.

Cortland, N. Y.—Erection of new fire station is urged.

New York City, N. Y.—Appropriation has been asked for by Commissioner Johnson to purchase about \$72,000 ft. of hose.

Tarrytown, N. Y.—At special election in North Tarrytown, voters, by a majority of 138, appropriated \$8,000 for motor chemical engine and hose truck for Union Hose Company. Proposition to buy a \$10,000 auto ladder truck for Pocantico Hook and Ladder Company was defeated.

Toledo, O.—Council has passed ordinance to issue \$200,000 4½ per cent. bonds for motorizing fire department.

Reading, Pa.—The Marion Fire Company of Reading has decided to purchase a \$12,000 aerial truck.

Hummelstown, Pa.—Purchase of 500 ft. of hose has been authorized by Borough Council.

Providence, R. I.—Advisability of substituting motor instead of depending upon present horse-drawn apparatus is being discussed by Edgewood Volunteer Fire Company.

Corpus Christi, Tex.—Committee has recommended that council later arrange to purchase one auto combination pump and hose wagon, four horses, and 1,000 feet of hose.

Galveston, Tex.—All bids for construction of new building for housing new fire alarm apparatus have been rejected. Bids will be readvertised.

CONTRACTS AWARDED.

New Bedford, Mass.—By city council committee, contract for repairs to No. 1 fire station, to George J. Dodge, the lowest bidder, at \$1,414. Other bids were Ricard & Davoll, \$1,448.50; P. McQuade, \$1,495.

Rochester, N. Y.—To International Motor Truck Co., contract for supplying two ton motor truck chassis for fire department, for \$3,000.

Schenectady, N. Y.—Commissioner of Public Safety John E. Cole has urged acceptance of bid from Clark Witbeck for two Alco chassis for bureau of fire. There was but one bid, price of bidder being same as made some weeks ago, \$2,795 for each chassis.

Schenectady, N. Y.—To Clark Witbeck, at \$540, for 1,000 feet of 2½-inch fire hose. Bid of A. D. Fancher, Binghamton, for 500 feet of 3-inch fire hose, which was \$325, was lowest and he got that contract. Bids were as follows: Eureka Co., Syracuse, 1,000 ft. 2½-in. \$625; 500 ft. 3-in., \$370. United & Globe Co., N. Y., 1,000 ft. 2½-in., \$650; 500 ft. 3-in., \$450. A. D. Fancher, 1,000 ft. 2½-in., \$560; 500 ft. 3-in., \$325. C. C. C. Fire Hose Co., 1,000 ft. 2½-in., \$595; 500 ft. 3-in., \$382.50. Clark Witbeck, 1,000 ft. 2½-in., \$540; 500 ft. 3-in., \$370.

Oil City, Pa.—Following recommendations have been approved: The purchase of 300 feet of 2½-inch Rellance brand fire hose from Voorhees Rubber Manufacturing Co., at 95 cts. per foot, and 200 feet of 2½-inch Winona brand fire hose from Bi-Lateral Fire Hose Co. at 90 cts. per foot, all equipped with Higbee threads.

Mexia, Tex.—To Webb Co. for motor combination chemical and hose wagon.

Fort Meyers, Va.—To Howe Engine Co., of Indianapolis, Ind., contract for one gasoline fire engine at \$1,628.20.

BRIDGES

Hartford, Conn.—Bond issue of \$1,500,000 for new bridges across Stratford ave. and State st. is being considered.

Denver, Colo.—Formation of general committee, representative of every commercial organization in Denver, for active campaign for adoption at special election on May 20 of ordinance authorizing a \$260,000 bond issue to meet city's share of cost of constructing Colfax-Larimer viaduct, has been outlined at meeting of directors of Chamber of Commerce.

Rome, Ga.—As result of recommendations made by session of Floyd County grand jury it is expected that new concrete bridges will be built across three rivers in city of Rome.

Edwardsville, Ill.—Five highway bridges will be constructed in Madison county this summer.

Muncie, Ind.—County council has authorized bond issue of \$81,500 for construction of new bridges, repair old ones and lengthening of others. Of that amount, \$40,800 will be expended for new bridges, \$33,500 for lengthening of five structures and sum of \$7,200 for repairs.

Muncie, Ind.—Following are estimates made for various bridges and repairs recommended: East Jackson st. bridge, new structure, 210-ft. span; estimated cost, \$8,000. West Smithfield bridge, new structure and repairs, 190-ft. span; estimated cost, \$6,700. Lindsay bridge over Stoney Creek, repairs; estimated cost, \$500. Sharon bridge, new structure, 210-ft. span; estimated cost, \$8,000. Smith bridge, No. 1, in Niles Township, new structure, 30-ft. span; estimated cost, \$2,000. Miller bridge, Center Township, over Mud Creek, new structure, 35-ft. span; estimated cost, \$2,000. Hamilton bridge over Mud Creek, 35-ft. span; estimated cost, \$1,800. Hofherr bridge over Mud Creek in Mt. Pleasant Township, new structure, 35-ft. span; estimated cost, \$2,000. Ike Williams bridge over Buck Creek, new structure, 80-ft. span; estimated cost, \$4,000. Fuel bridge over Mud Creek, 35-ft. span; estimated cost, \$2,000. Simon Hiatt bridge over Buck Creek in Monroe Township, 70-ft. span; estimated cost, \$3,500. Dawson bridge over White River, Center Township, additional span, 70-ft., and other repairs; estimated cost, \$4,370.

Hutchinson, Kan.—Citizens have voted bond issue for construction of two bridges and bids for bonds will be received May 13. Edw. Metz is City Clerk.

St. Louis, Mo.—At request of City Comptroller James Y. Player, the Board of Election Commissioners will meet to make estimate of cost of special bridge bond election. Cost will be approximately \$65,000.

Camden, N. J.—Board of Chosen Freeholders of county of Camden, will receive bids on Wednesday, May 14th, 1913, at 11 a. m. at the Freeholders' Room in the Camden County Court House for the purchase of all or part of from \$60,000 to \$75,000 bonds issued for the erection of a new bridge over Newton creek at Broadway, Camden county, N. J. F. W. George, Clerk of Board of Freeholders.

Albany, N. Y.—Senate has passed White-Squire bill, appropriating \$300,000 for bridge over Mohawk River at Vischer Ferry, and erection of approaches thereto in town of Clinton Park, Saratoga County.

Kingston, N. Y.—Plans have been completed for proposed Sleightsburgh bridge. They call for bridge over Island dock into West Strand; estimated cost, \$175,000.

Lenox, N. Y.—Town Board of Lenox has been asked to call special election to authorize construction of new bridge.

Newburgh, N. Y.—Plans have been drawn for bridge over Rondout Creek into Kingston on state highway route

3. Approaches have a maximum grade of 7 per cent. Bridge proper is in series of 8 concrete arches, or spans. Main stream clearance is 60 ft. above water. Provision is made to equip top of bridge piers with ornamental electric lights. Estimated cost is \$175,000.

Rochester, N. Y.—Construction of bridge across river to replace Ballantine bridge, 5 miles south of city, is being discussed.

Saranac Lake, N. Y.—Petition is now being drawn for presentation to Town Board requesting new bridge over Saranac River on Main st., near Riverside Inn.

West Vienna, N. Y.—Plans have been prepared by the State Highway Dept., Albany, for construction of steel bridge, two spans 50 ft. long and one 160 ft. long, and 18 ft. wide. Estimated cost is \$20,000.

Akron, O.—Bids will be readvertised for construction of new North Howard St. extension bridge across the Cuyahoga River. Estimated cost, \$78,000.

Dayton, O.—Surveys are being made of Fifth street and Webster street bridges by city engineering department, preparatory to presenting matter to city council for necessary legislation looking to their reconstruction.

Toledo, O.—Ordinance has been adopted to provide for issuing of bonds of city of Toledo in sum of \$30,000, for use in construction of bridge across the Maumee river, from Ash street on west side to Consaul street on east side of said river.

Urbana, O.—Commissioners have taken their first action in matter of rebuilding and replacing various bridges. They adopted resolutions providing for issuing \$20,000 worth of bonds to carry on bridge construction work.

Youngstown, O.—County Engineer E. S. Smith is preparing plans for bridge at Division street, to replace structure washed away by recent flood.

Altoona, Pa.—Twelve bridges will be erected during summer of 1913 in Blair county, at the county's expense, and five old iron bridges will be overhauled, and have new creosote block floors laid.

Chester, Pa.—Construction of bridge crossing Cram creek at Victoria Plush Mills, on Baltimore Pike, is being discussed.

Johnstown, Pa.—Bids will be received at the office of the City Treasurer until 12 o'clock noon, May 7, 1913, for purchase of \$50,000 Haynes-Street Bridge bonds of 1912. Harry W. Slack, City Treasurer.

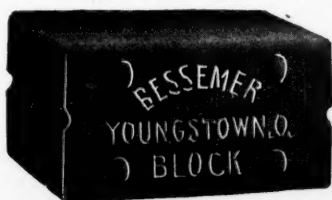
Uniontown, Pa.—County Commissioners and County Engineers of Fayette and Washington Counties have decided to begin work on construction of bridge over Monongahela River, at Brownsville, not later than June 1. New bridge structure will cost \$200,000, and will be 1,100 ft. long and 34 ft. wide. It will be a three-span structure over river and long viaduct will be erected on each side.

Richmond, Va.—Designs for new concrete bridge over James river, to replace old Ninth st. structure, have been received from twenty-five engineers, who entered competition prizes aggregating \$2,000 having been offered by board. After one plan has been formally adopted, bids will be invited from local and out-of-town contracting firms for construction of bridge work to begin immediately on completion of Mayo bridge.

South Richmond, Va.—Chesterfield Board of Supervisors is to construct a concrete bridge over creek which crosses Semmes avenue, between Dundee and Forest Hill Park. Proposed bridge will replace structure which is now in use and will be much wider.

Aberdeen, Wash.—Election has been called for May 13 for voting on \$95,000 bond issue for construction of bridge over Wishkah River.

Green Bay, Wis.—At Brown county board of supervisors towns have petitioned for aid amounting to \$9,200 for building bridges in county. Total bridge aid asked for by each town is as fol-



BESSEMER BLOCK

THE MOST UNIFORM SHALE PAVING BLOCK MADE

Makes a Uniform Pavement that is Durable, Sanitary and Always in Repair

BESSEMER LIMESTONE COMPANY, Youngstown, O.

lows: Bellevue, \$600; De Pere, \$250; De Pere, \$250; Eaton, \$1,000; Glenmore, \$800; Hobart, \$250; Howard, \$250; Lawrence, \$200; Morrison, \$800; Morrison, \$1,000; Pittsfield, \$1,000; Preble, \$800; Wrightstown, \$2,000. Total, \$9,200.

Ottawa, Ont.—Plans have been prepared for reinforced concrete bridge to be constructed on Pretoria avenue; it will cost \$130,000.

CONTRACTS AWARDED.

San Diego, Cal.—By City Council for construction of Old Town bridge, Woolman Avenue bridge, Main Street bridge and Escondido ford to Charles Steffen, at \$35,900.

Freeport, Ill.—To Northern Steel & Concrete Co. contract, at \$5,929, for construction of four bridges in Vysox township.

Shreveport, La.—To the Modern Steel Structural Co., of Waukesha, Wis., contract to construct wagon bridge over Red River between Shreveport and Bissier City.

Bay City, Mich.—By Bay county bridge commission contract for remodeling Lafayette avenue bridge over east channel to Standard Engineering Company, of Toledo, at \$8,126.

Middletown, O.—By city, to Arpp, Simpson & Co., of Middletown, for temporary bridge over Miami River at \$12,533.

Roseburg, Ore.—To Portland Bridge Co., Yeon Bldg., contract to construct three bridges at \$24,510.

Toronto, Ont.—To McGregor & McIntyre superstructure and hand railing for St. Clair Ave. bridge at \$36,232, and Scott & Law contract for piers and abutments at \$27,000.

York, Pa.—By County Commissioners to Walter Drawbaugh, of York, for erection of stone abutments for steel bridge to be placed across branch of Codorus creek, between York and Springfield.

Houston, Tex.—By City Council for erecting (a) concrete bridge, complete, at San Jacinto st., and (b) concrete viaduct connecting Capitol ave. and Rusk ave., not including foundation and piling, to W. P. Carmichael Co., St. Louis, Mo., (a) \$128,214, and H. C. Gass, Houston (b) \$88,500.

Everett, Wash.—For construction of French Creek bridge from parts of old Thomle bridge to W. G. Hiatt, at \$2,387; also for construction of Jackson Slough bridge, at \$2,267.

MISCELLANEOUS

Dothan, Ala.—City Council has ordered that election be held Monday, May 26, for purpose of voting upon issuance of \$40,000 worth of bonds by city to secure funds with which to build city hall and auditorium.

Long Beach, Cal.—Bond issue election for voting \$1,480,000 for public improvements will probably be called in June.

Los Angeles, Cal.—Plans for construction of a public comfort station in triangle at intersection of Spring, Main and Ninth sts., have been approved by supply committee.

Sacramento, Cal.—People have voted favorably on \$208,000 bond issue for new Hall of Justice building.

San Francisco, Cal.—Garbage bonds in sum of \$144,000 have been sold.

San Francisco, Cal.—City has sold bonds as follows: Hospital bonds, \$300,000; garbage system bonds, \$144,000 and City Hall bonds, \$3,960,000.

Atlanta, Ga.—Mayor Woodward has approved resolution passed by Council and concurred in by Aldermanic Board, to pay \$3,500 for motor truck for construction department.

Blackshear, Ga.—Bond election will be held for voting \$15,000 for public improvements.

Macon, Ga.—Committee has decided to purchase street brush cleaner to cost \$250.

Rome, Ga.—Two motorcycles will be purchased for police department.

Savannah, Ga.—Erection of garbage destructor is being discussed.

CONTRACTS AWARDED.

Wilmington, Del.—For collection of city rubbish to D. Lapute, of Newark, N. J., for two years, at \$3,500 per year.

Rockport, Mass.—By town for three sets of granite steps of five steps each to Pigeon Hill Granite Co., at \$739.

Swampscott, Mass.—At meeting of the Board of Selectmen contract for oiling of streets of town was awarded to Michael McDonough.

Greenwich, N. Y.—For collection of garbage to F. O. O'Reilly.

Saranac Lake, N. Y.—By Village Trustees for removal of garbage, to Frank Nutter, George West and Herman Bryant, at \$1,000 a year each.

Fargo, N. D.—N. N. Malvey was successful bidder for contract for new Clay county jail; Diebold Lock & Safe Co. got contract for steel and cell work, and Moorhead Plumbing & Heating Co. were lowest bidders for plumbing and electric

wiring and landed that contract. Malvey's bid on building was \$9,214; Diebold Lock & Safe Co. bid \$8,600 on cell work, and Moorhead Plumbing & Heating Co. got plumbing and electric wiring contract for \$3,177.

Youngstown, O.—Bids received for motor truck for waterworks department show Ralph Seidner and John Leonard low with bid of \$1,075 for Mora truck. A. Thornton was second with \$1,100 for Little Giant and Seidner and Leonard third with \$1,500 for an Avery.

Oil City, Pa.—Oil City Garbage Co. has been awarded contract to burn all of city's garbage for one year beginning May 1.

Pittsburgh, Pa.—By Department of Public Works, for erection of annex to golf house at Schenley Park to F. F. Schellenberg Company at \$8,683.

Pittsburgh, Pa.—By Department of Public Works contract for furnishing lamp posts for Hoeweler St. bridge to Somerville Iron & Bronze Co. for \$596.

Reading, Pa.—By Board of Works for following contracts: Scraping and cleaning unpaved streets—Districts Nos. 1 and 2, \$1,033.27, and districts Nos. 3 and 4, \$1,179.89, to Joseph A. Martin of Reading. Trap rock—Charles H. Fisher, \$1.05 per ton. Limestone spalls—Fehr & O'Rourke, \$1 per ton in districts Nos. 1 and 3, and \$1.40 per ton in district No. 4; Reading Quarry Co., \$1.05 per ton in district No. 2. Curb stone—John E. Weidner, 60 cts. per lin. ft. Red vitrified brick for paving—Mack Manufacturing Co., at \$18.75 per 1,000. Yellow vitrified brick for paving—Mack Manufacturing Co., at \$25.65 per 1,000. Asphalt—Sun Co., at \$18.10 per ton. Road oil—Standard Oil Co., at 9.1 cts. per gallon.

Brick sidewalks—John M. Hassler, 79 cts. per yard for laying new, and 24 cts. per yard for relaying old. Delivering spalls from cars—Fehr & O'Rourke, 40 cts. per ton. Vitrified block for gutters—Glen Gerv Shale Brick Co., at \$15.75 per 1,000. Setting curbs—Joseph A. Martin, 10 cts. per yard for new and old. Bituminous coal—Reading Supply Co., \$2.65 per ton. American Portland cement—David C. Geiger, \$1.69 per barrel, and 40 cts. for returned bags. Cleaning catch basins—Walter D. Nusser, \$1.10 per month each. Cast-iron work—Reading Scale & Machine Co., 2 1/2 cts. per pound.

Portsmouth, Va.—To Breslaue & Anthony, of Portsmouth, for furnishing uniforms for fire department.

Marinette, Wis.—To J. E. Utke for building new county infirmary at Peshigo, at \$15,283.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Pa.	Dormant	8 p.m. May 9	Brick, 4,200 yards	H. M. Stilley, Chairman Com.
Pa.	McKees Rocks	8 p.m. May 12	Paving, 17,000 sq. yds.	G. M. McGinnis, Boro. Engr.
Minn.	Duluth	10 a.m. May 14	Cement and wooden sidewalks	R. Murchison, Comr.
Ill.	Burnham	4 p.m. May 14	Sheet asphalt, cost \$30,000	W. H. Smith, Co. Clk.
N. J.	Kearney	9 p.m. May 14	Road oil, 30,000 gal.	W. B. Ross, Town Clk.
N. Y.	Poughkeepsie	4.30 p.m. May 15	Bituminous macadam, 3,000 yds.	R. J. Shields, Clk.
N. J.	Merchantville	8 p.m. May 20	Macadam, concrete gutters	W. F. McAllister, Boro. Clk.
Ind.	Wayne	noon May 26	Improving road	J. Howarth, Twn. Trustee.
SEWERAGE				
N. D.	Bismarck	8 p.m. May 19	Lateral sewer, 8-inch	R. H. Thistlethwaite, City Aud.
Pa.	Reading	2 p.m. May 21	Concrete sewers, 6,600 ft.; vitrified pipe, 3,900 ft.	E. B. Ulrich, City Engr.
Tex.	Pecos City	11 a.m. May 26	Sanitary sewers and laterals, 10 miles	J. B. Gibson, Mayor.
Pa.	Harrisburg	2 p.m. May 28	Disposal plant and water works for hospital	S. G. Dixon, Comr.
WATER SUPPLY				
D. C.	Washington	May 10	C. I. pipe, 6 and 8-inch; cost, \$4,500	Navy Dept.
N. J.	Asbury Park	May 12	C. I. pipe, 4,500 ft. 12-inch	S. H. Hellner, City Clk.
Ill.	Rock Island	May 12	Laying mains	H. M. Shriver, Mayor.
Kans.	Fort Leavenworth	May 14	Pipe, fittings, valves, etc.	Constrn. Q. M.
Okla.	Ft. Sill	May 26	Motor driven pump, wooden tank	A. U. Faulkner, C. Q. M.
Ont.	Ft. William	May 29	Tunnels under rivers	City Clk.
N. Y.	Upper Jay	June 1	Water works system	R. O. Beede, Ch. Com.
FIRE EQUIPMENT				
Can.	Moose Jaw	May 9	One service ladder truck; 2 chemical and hose cars; 175 ft. aerial truck; 1 pumping engine, chemical and hose car; all motor driven	City Comrs.
N. J.	Camden	8 p.m. May 22	Motor aerial truck; motor triple combination engine; motor steam fire engine; one or more tractors; re-pairing steamer	H. R. Read, Ch. Com.
Md.	Brooklyn	May 24	Fire alarm system	O. Zentgraf, Ch. Com.
LIGHTING AND POWER				
Tex.	Corpus Christi	4 p.m. May 10	Furnishing electric current	F. J. Mulligan, City Sec.
Mich.	Reading	May 20	Two high pressure tubular boilers	Vil. Clk.